Chapitre 1

Why very rich inheritors accumulate so little wealth ?

The accumulation patterns of the very rich inheritors are critical to the understanding of the interaction between inequality and growth. Since the work of Piketty *et al.* (2006), we know that wealth concentration increased sharply in Paris between the 1860s and the 1900s. It was also a period of economic crisis marked by the crisis of the financial, industrial and real estate sectors. This large restructuring of the French economy affected the wealth of a lot of individuals in France. In this context I wanted to understand if inheritors of very rich individuals were able to maintain the position of their parents and stay at the top of the distribution, or if they experienced massive losses in wealth and hence downward mobility. More generally, I wanted to know if the characteristics of the wealth of the parents affected the accumulation pattern of the children. This question has at least two dimensions. First of all the *value* of the wealth affects the endowments of the children and their accumulation pattern. Inheritors may behave differently - all other things being equal - if they receive large amounts of wealth. Second the *composition* of the wealth can affect the accumulation pattern of inheritors. In the final analysis wealth is made of assets which are more or less liquid, risky and profitable.

We will focus on a particular sub-population, namely the richest families. More precisely we'll deal with the inheritors of Paris top 1.5% wealth holders. The choice of this population is motivated by the fact that the very rich are very few but own a very large share of total wealth in advanced economies. For example the top 1% owned more than 70% of wealth at death in Paris in 1902-1912 which is the maximum of wealth concentration in the long run according to Piketty *et al.* (2006). Understanding enormous wealth concentration has motivated a lot of researchers since Pareto (1897). In France, the political debates concerning the "200 familles owning France" has been coming back regularly for a century now. Understanding wealth mobility and wealth accumulation of this population is necessary to understand how capital is accumulated in general in a society. This work is the first to enter the black box of the very rich families in France, with quantitative information on a large sample of individuals.

The aim of this work is to give information on the accumulation patterns of the very rich inheritors, something that is still not well known because of the lack of data. As pointed out in a lot of articles economic behaviour of the very wealthy is a puzzle that makes tough the modelling of wealth inequality and concentration (see Arrondel and Masson (2003), Nardi (2004)). It has been a big problem for macro-economists who were not able to reproduce high concentration of wealth with models of overlapping generations, and have to make very strong hypothesis on individual preferences heterogeneity (concerning e.g. saving behaviour or discount rates Stiglitz (1969), Bourguignon (1981), Krusell *et al.* (1998)). The canonical model with representative agent is not very fit to understand observable patterns, and often end up with very counter-intuitive results.

Micro-economists and historians have tried to observe and understand wealth accumulation and transmission. But they have had the same kind of problems with the top

wealth holders. For example, Bourdieu *et al.* (2008a) have developed a very large data set on inter-generational wealth accumulation in all France. This helped understand a lot of patterns, especially concerning differences between rural and urban areas. But it struggles with the under-sampling of the very rich.

In the anglo-saxon world, some empirical studies tried to capture inter-generational trajectories of very wealthy families. Menchik (1980) observed successions larger than \$40,000 in Connecticut in 1931, 1938 and 1944. This corresponds to the threshold of U.S. top 1% - 1.5% estates at that time Mc Cubbin (1990). He still struggles with observing very high level of fortunes - certainly because very large estates locate in cities and Connecticut was still a rural area with no major metropolis - and tried to expand the sample with higher successions in 1939, 1945 and 1946. He observed the wealth at death of the inheritors of these individuals and analyses social mobility from one generation to the other. But this study doesn't really enter the black box of the top 1% which was extremely heterogeneous according to Kopczuk and Saez (2004). Harbury and Hitchens (1976) - influenced by the earlier work of Wedgwood (1929) - studied accumulation patterns in the very wealthy class, with another methodology. Instead of looking at the heirs of the very wealthy, they observed the wealth of parents of individuals dying with estates superior to £100,000 in 1956 and 1958. This means the top 300 estates in whole United Kingdom every year (on a total of 600,000 departed in the whole country), or a small elite of rich knights and lords.

This study is influenced by these works and tries to have a more complete view on inter-generational wealth accumulation of different fractions of the top of the distribution. In this purpose I systematically observed top inheritances with children in Paris in 1862, 1867, 1872 and 1882. This was possible thanks to the universal data collection of Parisian successions provided by Thomas Piketty, Gilles Postel-Vinay and Jean-Laurent Rosenthal. Like Menchik, I searched the wealth at death of inheritor to describe wealth transmission and accumulation by the rich. This is probably the only systematic and quantitative work on wealth transmission in extreme fractiles realized on France. Another important contribution of this work is to be able to differentiate several sub-groups of the top wealth holders. We will see that large differences in inheritance accumulation patterns exist between the upper and the upper upper class. Heterogeneity in levels of wealth among Paris top 1.5% is very large as we will see. This is why this study splits this group - 450 individuals deceased each year approximatively - into three different wealth groups: top, second and third 0.5%. We will see that accumulation patterns were very different between these different sub-groups.

An essential contribution of this study is to compare the very rich inheritors with their contemporaries. Earlier studies on wealth transmission are self-referenced, meaning that they are focused on their own sample, drawing transition matrices (Arrondel Luc (2006), Bourdieu *et al.* (2008a)), or inter-generational coefficients of correlation (Menchik (1979),

Harbury and Hitchens (1979)). This is very important to have a representation of wealth mobility of inheritors. But it is also useful to compare the fate of inheritors with what happens in the rest of society. Thanks to Piketty *et al.* (2006) and Piketty *et al.* (2011) we now have a precise picture of the evolution of the Parisian wealth in the long run. As the Paris region industrializes and grows a lot before World War One, I wanted to know how the rich inheritors performed in comparison with the rest of the population. An issue of this chapter is to measure and explain the social *Déclassement* of the rich inheritors. Do they keep up with the growing wealth of the city, or do they lag behind? We don't have universal information of inter-generational wealth accumulation in all Parisian families. This task is largely out of reach until today. But it is now possible to compare the rich inheritors with the evolution of the different percentile groups in Paris. This gives a first information of the relative accumulation in the long run.

In average top inheritors accumulated wealth at a low rate. Using extraordinary rich data of the *Enregistrement* - the administration in charge of collecting the inheritance tax - we will see that the very rich inheritors end up with a wealth at death that corresponds roughly to the ex-post value of their inherited assets. Wealth accumulation through saving or labor income was very limited in the top fractiles. On top of this real estate assets exerted a considerably negative effect on wealth at death. In Paris from the 1860s to at least World War I, real estate ownership was concentrated at the top of wealth distribution. Because of the characteristics of this kind of goods (low liquidity, and low profitability at that time) real estate seem to have been a constraint for rich inheritors. A large part of this chapter will be devoted to the study of the long term effects of real estate inheritance. A central idea of this work is to consider the quantity of wealth inherited but also its quality. Levels of wealth can be measured in currency but in the final analysis they are made of assets: cash, real estate, stock, bonds, furniture, etc. Those assets can differ in form, liquidity, profitability, personal attachment. Their relative price can vary across time which result in capital gains or losses for inheritors. Moreover, the different inherited assets will be either kept or sold by the inheritors. Using the richness of the information contained in succession records, it is possible to know what kind of goods were transmitted, but also in some cases to know what inheritors have done with those goods in the course of their life. We'll see that the inherited assets are an opportunity for inheritors, but also a constraint. We have focused mainly on the distinction between real estate and non-real estate assets but it is just a first step toward a better understanding of the effects of inheritance. We'll try to show that one reason why *history matters* here is that the characteristics of certain inherited assets have long term effects on the inheritors.

1.1   Observing wealthy families in Paris

In this study I focused on Paris' top 1.5% wealth holders and their descendants. This small part of the population owned an enormous share of the capital that was accumulated

and then transmitted at death in Paris but also in France. This group gathers individuals with large estates but actually mixes very different people: men and women, aristocrats and *bourgeois* with different religion, social origin and professional activities. It gathers individuals with comparable wealth levels without selection based on other criteria. The limits of the group itself is arbitrary. They were fixed by an arbitrage between the need to observe a sufficiently large amount of families, with sufficiently different levels of wealth, and the costs of searching and treating large amounts of information. Observing the top 1.5% enabled me to differentiate three - relatively large - subgroups of individuals: top, second and third 0.5%. I used the Parisian estate data set to identify the members of the top 1.5% in different years between 1862 and 1912. Concretely the size of this group was determined according to the number of individuals deceased older than twenty years old in Paris every year [1].

1.1.1 Assessing the weight of top 1.5%'s wealth.

By construction the top 1.5% is a very narrow population. But wealth ownership was so concentrated both spatially and socially (cf. Piketty et al. (2006)) that the study of this small population matters to understand capital accumulation in France. It is common knowledge that Paris has been at least for two centuries the main place of economic and political power in France (see e.g. Charle (2006), Plessis (1982)), and that some lucrative activities like the *Haute Banque* (the large private Banks) didn't exist in other french cities. Therefore a very large proportion of the very rich Frenchmen were living in Paris. The aim of this section is to precise this idea with accurate quantitative computations of the weight of Parisian top 1.5% and its evolution over time.

The figure 1.1 provides descriptive information on the wealth of Paris' top 1.5% between 1862 and 1902. The amount of wealth necessary to be part of the group is around 330.000 francs [2] between 1862 and 1882. The threshold rises to half a million francs before World War I. Average wealth reaches nearly one million between 1862 and 1882 and is about 2 millions in the 1900s. The share of the group in total Parisian wealth at death is always above 60% over the period and it increases over time of more than 10 percentage points.

I also computed the share of top Parisian estates in total french wealth at death, using the Parisian estates data and the total value of french estates of corresponding year, published by the french Ministry of Finance in INSEE (1972). Table 1.2 shows this share

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[1]. For example there 24,000 deceased older than 20 in Paris in 1862. Therefore this year the top 1.5% was composed of the 360 richest individuals.

[2]. The levels of wealth are expressed here in francs of 1882 as all measures in this work. I used the series of consumer prices for France presented in Lévy-Leboyer and Bourguignon (1985) and Piketty (2001). The prices of 1882 have to be multiplied by a factor of about 3.5 in order to obtain the prices in euros of 2010.

Table 1.1: The Wealth of Paris' top 1.5% between 1862 and 1912.

	1862	1867	1872	1882	1902	1912
Average Wealth	894,161	874,579	918,099	982,965	2,026,937	1,726,121
Minimum Wealth	346,933	326,584	324,269	346,883	536,985	496,155
% of Wealth in Paris	61%	62.2%	64.5%	67.8%	71%	73%
Size	360	406	370	560	551	558

Wealth levels in Francs of 1882.

for several years between 1862 and 1912. During the 1860s top 0.5% owns about 6-7% of total, 1.5% around 10%. The share of the rich Parisians is at its lowest level in 1872, just after the French-Prussian war and the revolution of the *Commune de Paris*. In 1882, rates have caught up with the levels of the 1860s. The weight appears to rise for all fractiles until World War I were top 0.5% itself owns more than 11% of total french estates. The weight of Parisian top fractiles is higher for non-real estate wealth, but not very much. As we will see, this population owned a lot real estate (actually the bulk of Paris buildings). It had still more financial assets in portfolio than average french succession. As far as financial and industrial investments are concerned, the quantitative weight of Paris top 1,5% was very high: 12-14% in the 1860s-1870s, culminating at about 16-20% of total before World War I.

Table 1.2: Shares of parisian top 0.5, 1 and 1.5% in french total wealth at death, 1862-1912, (%).

	All Wealth					
	1862	1867	1872	1882	1902	1912
Top 0.5%	7.1	6.7	5.6	6.4	12.8	11.2
Top 1%	9.4	9.2	7.5	8.8	16.3	14.6
Top 1.5%	11.1	11.1	8.8	10.3	18.4	16.7

	Non Real-Estate Wealth					
	1862	1867	1872	1882	1902 (est.)	1912 (est.)
Top 0.5%	9.3	8.5	8	9	14	11.6
Top 1%	12	11.5	10	12	17.5	14.7
Top 1.5%	14	13.5	12	14	19.7	16.5

Wealth by share comes from data on Paris estates, totals for France come from *annuaire66*.
French non-real estate wealth are not observed 1902 and 1912. Estimations are based on
years 1899, 1906 and 1908.

Computing the weight of top Parisian estates in top French estates is harder. There are indeed no available data from the tax administration on national top fractiles prior

to 1902 [3]. The Ministère des Finances published the first tableau de "répartitions" by département in the series of *Bulletin de Statistique et Législation Comparée* [4] of June 1903. It gives the number and value of successions by tax bracket for all french metropolitan départements. At that time, the city of Paris was not a département as it is now, but a (large) part of the département de la Seine. According to the tabulated data of the Ministry, 29% of French top 1% (the successions above 100,000 francs) were located in the Seine in 1902. 46% of the members of the French top 0,2% - a group that accounted for 33% of all french estates - was living there. For successions above one million of francs - which constitute the French top 0.07% - the Seine represents 54% of total.

The city of Paris represented about 79% of the population of the Seine in 1896 [5]. But there is no information on the share of Paris in the Seine at different levels of wealth. I tried to have a direct measure of it with the Parisian estate data set. I computed the number of Parisian estates within each tax bracket in 1902. The figures for Paris shown in table 1.3 correspond roughly to the share of the Seine of the *BSLC*. Unfortunately, it is clear that the Parisian data sets contradicts a bit the figures of the Ministère. The number of large estates in Paris exceeds indeed a little the one given in the *BSLC* for the Seine département. This is certainly due to methodological differences in determining the level of estates. Piketty *et al.* (2006) take into account complementary successions (assets that were omitted in a previous declaration) established after 1902, which is not the case with the Ministry of Finance. This difference leads to an underestimation of the share of top estates in France and Seine. But the weight of complementary declarations is relatively low, so the bias is not of very large amplitude. For this reason it is very likely that almost of the top rich of the Seine were living in Paris. Henceforth a Paris share superior to 20% in French top 1%, to 40% in top 0,2%, and 50% in top 0,07% are also likely in 1902. To sum up, on can say that, in 1902, the members of Paris' top 1.5% pertained France's top 0.2%. Moreover, nearly half of France's top 0,2% - a social category that owned a third of the total wealth - was Parisian.

As already noted, figures for earlier periods don't exist. Is it possible to decide if the share of the Parisian in top estates increased, decreased, or remained more or less constant between the 1860s and the 1900s? Microeconomic data are very scarce. In order to answer this question I have compared the evolution of the population and of the average wealth at death in Paris versus the other main French cities [6]. The available data suggest that :

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(3). Before this date, no wealth distribution was produced by the administration. The successions were taxed with a flat rate, which made it useless for the administration to gather all the estates of a single individual in a same declaration (cf. Appendix **??**).

(4). This series of publication will be referred to in this work as the *BSLC*

(5). Source: de la France (1900))

(6). In XIXth century the bulk of the large estates concentrated in very large cities (see Daumard and Codaccioni (1973)

Table 1.3: Share of the département de la Seine in french top wealth holders, by level of wealth (current francs), in 1902.)

wealth level	> 100,000	> 500,000	> 1 million
%age of French Wealth	58%	33%	23%
Number of Succ. - France	6,815 (top 1%)	1,092 (top 0.2%)	408 (top 0.07%)
Number of Succ. - Seine	1,954 (top 3%)	506 (top 0.7%)	223 (top 0.35%)
Seine/France	29%	46%	54.5%
Number of Succ. - Paris	1,598 (top 4%)	516 (top 1.5%)	250 (top 0.7%)
Paris/France (indicative)	23%	47%	61%

source: *BSLC* and Paris estates.

– The growth of wealth at death was not larger in Paris in comparison with the other cities. Some works have tried to measure wealth increase in various cities in France. They don't show a more rapid increase of richer population in Paris relative to other large cities. Using the TRA sample, Bourdieu *et al.* (2008b) show that between periods 1848-1869 and 1895-1913, P75 of wealth holders [7] increased by 84% in real terms in Paris and by 90% in provincial towns. As quoted by the authors themselves, this work concerns ordinary people and not the very wealthy, which is a major issue for our concern. The classic work of Daumard and Codaccioni (1973) settles partly this matter. An important conclusion of this work is that between 1851 and 1911 the pace of the increase in wealth levels in Paris was intermediary between cities of faster increase (Lyon and Lille) and cities of lower increase (Bordeaux and Toulouse).

– The increase of the population of Paris was more or less equal to the increase in the other large cities. The data of the censuses of the French population shows indeed that the population of Paris increased by 60% between 1861 and 1901, from 1.696 to 2.714 millions. In the same time the joint population of the 8 french major cities - in order of importance in 1901: Marseille, Lyon, Lille-Roubaix-Tourcoing, Bordeaux, Toulouse, Saint-Etienne, Le Hâvre, Rouen - was 1.435 million in 1861 and 2.164 in 1901. This makes an increase of 61,5%.

To sum up this discussion, Paris' weight in comparison with other cities don't seem to have increased between the 1860s and the 1900s. Neither did mean levels of wealth. For these reasons the share of Parisian in top estates should not be very far from what it was in 1902. It would be necessary to complete the work of Daumard with systematic work on the top of the distributions in large french cities which was not possible for this work. Nevertheless it is reasonable to assume that the Parisian top 1.5% in the 1860s-1880s represented about 40% of the French population with comparable levels of wealth.

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(7). That is to say the say the threshold of wealth to be part of the richer 25% of the sample

1.1.2 A certain social homogeneity despite wealth heterogeneity

Let us now observe the top 1.5% more precisely during the period 1862-1882[8]. This group is very heterogeneous as far as wealth levels are concerned, as we can see in table 1.5. The average estate in the top 0.5% was about 5 times the average estate in the third 0.5%. The second and third 0.5% are closer to each other. The third 0,5% is also closer to the rest of the top 3% than it is to the top 0.5%. We see indeed that the average estate in the third 0.5% was less than twice as high as the average of the rest of the top 3% and four times as low as the top 0.5%. Actually this last subgroup is very heterogeneous itself. A few very large estates are part of the top 0.5% and increase sharply the average of this category[9]. Finally we can see that the differences between the different subgroups of the top 1.5% remain very stable between 1862 and 1882.

Table 1.4: Average wealth at death by wealth groups.

	1862	1867	1872	1882
top 0.5%	1,712,544	1,620,706	1,781,598	1,868,304
second 0.5%	575,759	605,469	602,537	673,239
third 0.5%	394,182	397,563	394,410	419,535
Rest top 3%	239,479	224,995	228,364	226,209
Other wealth holders	18,540	18,266	18,686	18,671

Despite large difference in wealth levels the three subgroups show similar portfolio structure. A striking fact is the very high proportion of individuals who own some real estate assets. Real estate assets represent also a larger proportion of wealth at death in the top 1.5% than in any other group of Parisian wealth holders. At the same time the portfolios of the very rich Parisian are more diversified. These two features can be seen in table 1.5 thanks to the successions of 1872 and 1882[10].The real estate owners were more than two thirds of the members of the top 1.5%. More than 40% of wealth was made of real estate and more than two thirds of the group was a real estate owner. The share of

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(8). The "parents" of my inter-generational were chosen in the years 1862, 1867, 1872 and 1882, see below.

(9). For example in 1882, the top 0.1% (37 individuals on 185) had an average estate of 4,05 million francs.

(10). For years 1872 and 1882 we know the total decomposition of the wealth at death by type of goods of a (large) random subset of the population. The Paris estate data benefits from the very large amount of information contained in the estate declarations. Each estate was decomposed by assets for which we know the quantity, name, type, price and location (in case of a real estate good). Example (fictitious): "7 stocks of the railroad company PLM... 9.891 francs plus One Hotel located at 22 rue de Longchamps... 423.760 francs".

real estate is large - around 40% - in comparison with the rest of the population, even with the rest of the top 3% (32%). In this category the proportion of real estate owners is 40%. We also see that there was almost no real estate owners in the rest of the Paris wealth holders (they represent 7.4% of total population). Real estate was quantitatively very important in the top 1.5%. The probability of having some real estate is increasing with the level of wealth, and it was close to 80% in the top 0.5%. The share of real estate in portfolio rises with the level of wealth, and decreases at the extreme end of the distribution, as it has already been mentionned by Daumard (1963) and Piketty *et al.* (2006). Extreme rich people own more often real estate, but in lower proportion than individuals below them.

It appears also that portfolios were more diversified in top 1.5% than in the rest of the population. About 70% of the individuals of this group had real estate, 72% had stock, 73% had bonds. As in the the rest of the successions in Paris the private bonds were the most popular asset: they appeared in 83% of the top 1.5% estates, 69% in the rest of the top 3% and still a third of the rest of the population. The members of the top 0.5% was also more likely to own directly a company within the top 1.5%. Average share in companies was worth about 845,000 francs of 1882 and represented usually a large part of portfolio of their owner. But company direct ownership concerned a very small minority of our sample even in the top 0.5%. This can be due to the limits of our means of observation. Maybe some entrepreneurs sell their company or donate it to their heirs when they retire a few years before their death. In this case we will underestimate the proportion of company owners because the companies will not appear in the estate declarations. A way to control for this bias is to observe company ownership of young individuals in comparison to the others. I regressed a dummy variable of "company direct ownership" on a dummy variable of age ("more or less than 60 years old") controlling for a dummy variable of wealth ("part of the top 0.5% or not"). It turns out that individuals dying younger than 60 were 3 times more likely to own a company (this is statistically significant at a level of 1%). In the top 0.5%, a third of young individuals owned a company, versus 10% for the individuals older than 60. This was 3.5% of the young in the rest of the top 1.5% versus 10% of the older ones [11]. This suggests that a significant share of top wealth holders had been company owners, especially in the top 1.5%. Life-cycle studies of wealth composition would be necessary to understand wealth accumulation patterns. In the end companies don't appear much in the successions, and the difference of proportion is small within the top 1.5%. The presence and shares of financial assets are not very different in the different sub-groups of top wealth holders. The share of public bonds is a bit larger in the top 0.5% contrary to the share of private bonds. The main difference concerns the degree of asset diversification that is higher in the top 0.5%.

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(11). The same kind of regression has been made on real estate ownership. Age has no significant effect, suggesting a more stable ownership of this asset in the life-cycle. This can be due to the fact that inter-vivos gifts of real estate were more taxed at that time that other gifts.

Table 1.5: Composition of estates by type of assets for different wealth groups in Paris (1872 and 1882).

Group	Presence					Proportion					
	R.E.	Sto.	Obl.	Bon.	Comp.	R.E.	Sto.	Obl.	Bon.	Comp.	Oth.
Top 0.5%	74	81	88	80	12	39	17	17	14	8	5
Second 0.5%	69	69	84	74	9	43	14.3	20	12.5	6	4.6
Third 0.5%	60	67	78	64	4.5	41	15.8	21	11	3.7	7.5
Top 1.5%	69	72	83	73	8.5	41	16	19	12.5	6	5.5
Rest top 3%	41	54	69	55	/	32	15	25	15	/	13
Rest of Wealth holders	7.4	30	34	27	/	6	16	15	17	/	46

First Row and Column: 74% of the successions of top 0.5% contained Real Estate.
First Row, Sixth Column: Real Estate represented 39% of the value of estates in top 0.5%

The structure of portfolios was very similar in the three different sub-groups of the top 1.5%. Moreover this group was rather socially homogeneous according to the observations available in the estate declarations as we can see in figure 1.6 [12]. First of all demographic structures are close in the three groups. Members of top 1.5% die basically at the same age, around 68 years old. This is 5 years older than the individuals just below them on the wealth ladder and 12 years older than the rest of the Parisians. They have also more children inheritors than the rest of the population [13], although the difference is clearly less severe than for age at death. Individuals in the second and third 0.5% have exactly the same number of children inheritors. There are about 10% more children in the successions in the top 0.5%. The proportion of women is basically the same in all the levels of wealth, and below 50%.

As fare as life style is concerned the three fractions of the top 1.5% seem to be very close. Two third of them were not living in a building they owned (see column "tenants" in table 1.6). I computed this figure for top 1.5% wealth holders deceased in 1872 and 1882 confronting their address of residence and the address of their real estate (both inherited or bought during mariage). The term "tenant" is abusive because some of the individuals actually live in their spouse's own building which we cannot observe in the succession declaration of the individual. This bias concerns only the married individual, which are about the half of the members of the top 1.5%. We can conclude at least that the rich Parisian were not massively living in their own building. The two first groups are very close to each other. In the third one the proportion of tenants is just a bit superior.

(12). The figures were computed using the years 1872 and 1882. Information for years 1862 and 1867 were again not completely available in the Paris estate data set.
(13). This figure is computed among the successions with children inheritors

Table 1.6: Some descriptive statistics by level of wealth, years 1872 and 1882.

|	age	nb inheritors	woman	"tenant"	professional	merchant	rentier	légion d'h.
Top 0.5%	68.7	2.58	0.44	0.64	0.13	0,12	0,56	0,15
Second 0.5%	67.6	2.31	0.46	0.65	0.15	0.16	0.56	0.12
Third 0.5%	68.6	2.30	0.47	0.71	0.13	0.18	0.61	0.12
Top 1.5%	68.3	2.39	0.45	0.66	0.13	0.15	0.58	0.13
Rest top 3%	62.7	2.12	0.43	/	/	/	0.55	/
Rest Paris	54.6	1.92	0.44	/	/	/	0.20	/

Professional gathers physicians, lawyers, notaries, judges.
Rates of professionals, merchants and légion d'honneur concern men only.

The social proximity of the individuals of the three groups is confirmed by their location in the city of Paris. As we can see in figure 1.1 there is no clear spatial segregation between our three subgroups. The rich Parisians deceased at that time almost entirely lived in the limits of Paris before 1860 (represented by the black line). Among the densely populated neighbourhoods of Paris within this area, some were almost deserted by the individuals of the top 1.5% like the ancient faubourg-Saint-Antoine and the north of the Canal Saint-Martin in the eastern part, and an area around the Sentier in the center of Paris between the rue Etienne Marcel and the rue Bonne-Nouvelle. In addition, individuals tend to concentrate in four main areas. The two most densely populated are by far the 9th arrondissement, east of Saint-Lazare train station (1) and the 10th arrondissement, from the Boulevard de Bonne-Nouvelle to the rue Lafayette (2). Two other areas can be delimited around the boulevard Saint-Germain (3) and the boulevard Henri IV (4). The members of top 1.5% lived in the 8th arrondissement, and the area around the boulevard Beaumarchais although those places are less densely populated. Members of our three groups clearly lived in the same areas.

Concerning occupation the differences are again not very marked. The majority of men of the top 1.5% are declared "propriétaires" or "rentiers". Professionals have the same weight in all the three groups, but there are less merchants and traders in the top fraction of large estates. It is difficult to interpret those percentages, because the way profession was declared and filled by the administration is not known. More importantly, because people were already retired at the moment of their death the estate declarations are maybe not a good means of observation of professions. We can say however that the proportion of proprietors was much larger in the top 1.5% than in the lower fractions of the population, which a minima indicates that declaring an occupation was not a sign of distinction by the very wealthy in comparison with the fact to declare no occupation at all. Because there is a lot of on-line biographical information on individuals of the top

Figure 1.1: Residence at death of the members of the top 1.5% in 1872.
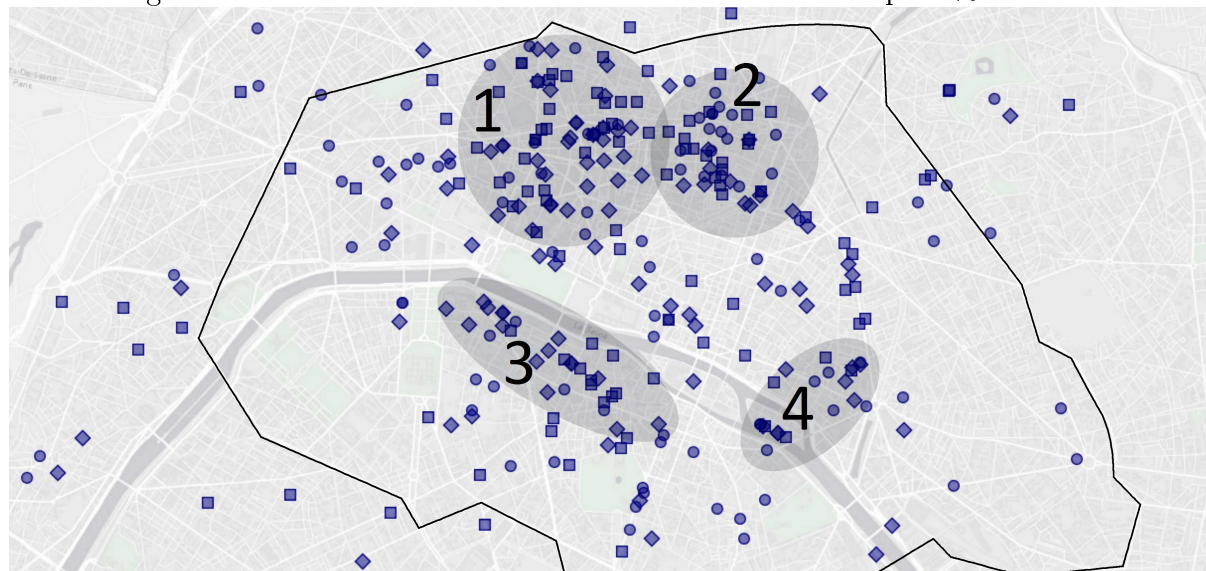
Circles are individuals of the third 0.5%, diamonds of the second, and squares of the first.
The black line represents the limits of the city of Paris until 1860.

0.5%, I was able to check the occupation of a large share of them. Almost all professionals declared their occupation, which is not the case of merchants and traders. The proportion of professionals is then maybe the most reliable of this source. As it is shown in table 1.6, this proportion was basically the same in the different fractions of the top 1.5% at about 13%.

Beyond occupation, I tried to have an idea on the degree of relative integration of top 1.5% into the political sphere. To do so, I computed the proportion of men having received the *légion d'honneur*. This is indeed the highest honorary decoration in France. It was created by Napoleon and survived all political regimes since then. It is given almost automatically to high ranking civil servants. Other individuals can be proposed to the decoration by a member of the government. The files of all the *légionnaires* are available and listed online in the base LEONORE. It turns out that 13% of men of our sample in top 1.5% had received the légion d'honneur, which is a very high proportion. This is to be compared with the 0.2 to 0,3% in the average adult population at the end of the XIXth century [14]. There are still more légionnaires in the top 0.5%, but the difference among top 1.5% are once again not very large. Although this proportion is high, the vast majority of our sample had had no major political charge, and was not decorated.

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(14). According to the online data of the Ministère de la culture, there were 75,000 légionnaires in 1871.

1.1.3   Observing the descendants of the Top 1.5%.

Thanks to an extensive work on fiscal and genealogical sources, I have tried to build a relatively large data set on two generations. It includes the members of the top 1.5% deceased between 1862 and 1882 and their descendants. To do so I observed a random sub-sample of the highest direct inheritances [15]. The distribution of observed inheritance by year and rank of the succession are summed up in table 1.22. I ended up with 832 successions, in which appeared 1909 children inheritors. I gathered the different successions into the three subgroups. Table 1.7 shows the distribution of observed inheritances by wealth group and by year. The top 0.5% has a large number of observations in all the years. The second and third groups have more observations in 1862 and above all 1872 and 1882.

Table 1.7: Number of successions by ranking group and by year.

	1862	1867	1872	1882	total
top 0.5%	74	61	80	104	319
second 0.5%	42	31	80	99	252
third 0.5%	57	0	112	92	261
total	173	92	272	295	832

The second step was to locate the children inheritors at the time of their own death [16]. I search the inheritors in all possible fiscal and genealogical data sets available and located 83% of them. I then observed the wealth at death of inheritors who were living in Paris and a few cities in the western suburb of Paris (Neuilly-sur-Seine, Châtillon and Asnières) at the moment of their death. It would have been too costly to try to observe the wealth at death of the inheritors located in other parts of the French territory or in other countries. Focusing on Paris seemed sufficient to observe the bulk of the inheritors. The estate declarations suggest indeed that top 1.5% Parisian families were centred in Paris. Table ?? shows the location of the inheritors as indicated in the successions of 1872 and 1882. People under 21 years old are not taken into account in this calculations. 99% of them lived indeed in Paris, either by their surviving father/mother, or by a close relative. Their place of residence is probably not representative of the place they will inhabit after. On the contrary focusing on the adults gives a better notion on the weight of the *definitive* Parisians, as they are older and have already made the main decisions concerning their place of residence (above all marriage and occupation). This is just an assumption and we don't know exactly the age of those inheritors at their parent's death. Piketty *et al.*

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(15). By direct inheritance/succession I mean an inheritance with children and/or grandchildren, which account for 72 to 75% of all successions in top levels of wealth.

(16). For a general presentation of the construction of the sample, please report to ??

(2006) consider that parents have their children in average at age 30 at that time. This means that the average inheritor has 36-37 years at the time of the death of his/her parent (the age at death was about 67-68 in top fractiles, cf. 1.6). Because I excluded the 20% of individuals under 21, this would make an average closer to 40. This is a pretty advanced age, considering an average age at death at about 67. Place of residence at this age don't give the real proportion of definitive Parisians, because there will be movers in both direction in the next 25-30 years of their life. But the actual proportion at death shouldn't be extremely far from it.

The results on the place of residence are summed up in table 1.8. According to our source, the vast majority of children inheritors were located in the Paris region when their parent died: about 88% of total, 83% for the city of Paris itself. Another striking fact is the very low proportion of individuals living in foreign countries, or in the colonial empire. Inheritors living outside Paris region are more likely to live in small towns or in a domain in the countryside. Moreover, there is no great difference in the geographical distribution of adult inheritors from one rank of wealth to another: 89% of the inheritors of top 0.5% families live in the Paris region and 87% for the third group. Still, 6% of the inheritors from the lower fraction of the top 1.5% were living in the close suburb of Paris (la Seine). This is just 1 to 2% for the other fractions. Differences between sons and daughters are negligible and were not reported here.

Table 1.8: Place of residence of children inheritors at their parent's death, by ranking group of the parents.

Location	Top 0.5%	Second 0.5%	Third 0.5%	Average 1.5%
Paris	85,0	83,9	79,4	82,8
Seine	1,8	1,3	6,0	3,0
Seine et Marne, Seine et Oise	2,0	2,2	1,7	2,0
Total Paris Region	88,8	87,4	87,1	87,8
Large Provincial Town	2,9	4,7	3,6	3,7
Other french town	6,6	6,0	7,7	6,8
Foreign Country	1,8	1,9	1,6	1,7
Observations	397	320	266	/

Foreign countries contain also provinces of french colonial empire
The average is computed with equal weight for each rank
Large Provincial towns are cities with more than 50.000 inhabitants.
Sample: the successions of 1872 and 1882. Inheritors older than 21.

We don't know the definitive proportion of inheritors who will effectively die in Paris, but we can suppose it is very large, and probably above 80%. Some of the individuals outside Paris will probably come back at an older age. This is the case of the men who were doing their military service at the time of their parent's death. The fact of inheriting

will probably bring some children to Paris - especially for those who inherit real estate. In any cases the restriction of observations of wealth to inheritors living in Paris shouldn't be harmful to this study. What's more a substantial fraction of the inheritors whose wealth was not observed were living close to Paris, and there is no major reason to believe that they were particularly different from the Parisian in terms of life style, investments, accumulation patterns. Only people who went abroad or outside the Paris region are possibly very different as far as their occupation or their sector of activity is concerned. But they represent a small minority as far as we can see.

In the 832 succession declarations treated, I could observe 1909 children inheritors - 851 sons and 1058 daughters [17]. I restrained the observations of the inheritors' wealth at death to those deceased between 1882 and 1915 and some years in the twenties and thirties. The 1882-1915 period is sufficiently large and we have very good and universal genealogical means of observation of the Parisians. For this period we can assume that almost all Parisians could be found and observed. Their number is equal to 710, which accounts for 60.5% of the 1217 found Parisians [18]. Then almost all of the Parisians deceased between 1882 and 1915 (93% of them) were observed. In the end I observed the wealth at death of 654 inheritors deceased between 1882 and 1915. This is about a third of the numbers of inheritors we had at the beginning. Rates of finding are different from one level of wealth to another (88% fort top 0.5% to 79% for third 0.5%), but not as much as one could have believed in the first place [19]. As I said not all the inheritors that were *located* were actually observed, because it would have been too costly in time to check the successions of inheritors living outside Paris. As it was shown, geographical mobility outside Paris was limited in this fraction of the population. This is confirmed by genealogical research. At the moment of their death, 20% of the non-Parisian inheritors that we found lived in cities of the Paris region (above all Neuilly-sur-Seine, Fontainebleau, Saint Germain en Laye and Versailles). There is no reason to believe that those inheritors are very different from the ones living in Paris, in terms of investment or saving behavior. Some inheritors, mostly aristocrats, died in the countryside [20], but we can imagine that a non negligible part of them moved there at the end of their life.

I focus mostly on the pre-World War I period because I'm interested in peace time wealth transmission and accumulation in the long run. The shocks created by World War One on assets and families creates will have to be studied in future works. Of course, observing people until 1915 is a problem, because we won't observe inheritors who died

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(17). On top of these 1909 individuals I aslo observed the presence of 98 grand-children, as well as 8 religious individuals, 9 persons identified as *interdits* (mad) and 1 as *disparu* (missing) were excluded from the sample.

(18). There were 118 inheritors living in Paris and dying between 1862 and 1881, and 389 after 1917.

(19). For an exhaustive presentation, please report to appendix **??**

(20). A name of manor (château) is mentioned in the sources (enregistrement and vital documents) for 8% of non Parisians, but without any description of it

really old in the 1930s, 1940s and 1950s, and/or those who were very young at the death of their parents (especially for parents of generation 1882) [21]. This bias is still limited. The spacing of the parents' death (from 1862 to 1882) and the amplitude of the period that was chosen mitigate this age bias. First, inheritors that died just after the parents of 1862, 1867 and 1872 are excluded by construction by the sample. Second, there are just 33 years between 1882 and 1915 but 53 between 1862 and 1915. Therefore, our sample contains younger individuals from parents deceased in 1872 and 1882, and older ones from parents deceased in 1862 and 1867. This sub-sample excludes a lot of inheritors deceased very young or very old. But in average, the age at death of the 654 observed inheritors is a little more than 64. This is just 1,5 years below the age at death in Paris' top 2% in the data on estates of 1902.

1.2 From one generation to the other.

Table 1.9 gives statistical summary about the distribution of wealth of both generations. Wealth is measured in gross levels, which means the sum of all assets owned without subtracting liabilities (see appendix **??** for a general presentation) and is corrected by the evolution of consumer prices. The parents died in average in 1872, the inheritors in 1899. The dispersion is high in both distributions, and is higher at the inheritors' generation. Maximum levels of wealth of both generations are extremely high, even for today's standards [22].

Among the inheritors four individuals die with an estate superior to 30 million francs. Cécile Furtado-Heine is by far the richest inheritor of our sample with a fortune of 187 millions in 1897. She was the unique daughter of Rose Fould and Napoleon III's finance minister Elie Furtado. She was also the widow of a very rich German banker in Frankfurt (Charles Heine). Two inheritors of count Jean Henri Greffulhe and Marie de Vintimille, Charles and Jeanne deceased in 1888 and 1902, had respectively 56 and 33 millions. The last one is Alfred Sommier the son of Alexandre and Anne Sommier. He was a sugar-tycoon and the owner of the castle of Vaux-le-Vicomte among other things. He was deceased in 1909 with an estate of 33 millions. These four inheritors had their parent in the top 0.5% (actually in the top 50 successions of 1862 or 1867.).

From one generation to the other, average wealth increases of 75% from 1.1 million to about 2 millions. But putting the four top inheritors out of the sample makes the increase less impressive, from 1.1 to 1.5 million francs. Table 1.9 emphasizes the very strong dispersion of the estates of the children. Standard deviation is twice as large by

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(21). As a matter of fact I was able to locate just 75% of inheritors who were declared "mineurs" (under 21 years old) in their parent's succession, while I found 86% of the other individuals

(22). to give an order of magnitude, 22 and 187 million francs of 1882 correspond respectively to 75 millions and 635 million euros of 2012

the children (6-fold if the top four children are included). The ratio P75/P25 is multiplied by two. Considering the impact of extreme values and dispersion of the distribution, it is maybe more interesting to look at the median increase. For the whole sample median wealth increased by 8% between the two generations.

Table 1.9: Wealth Distributions (frcs 1882).

	Parents	Children Inheritors		Parents	Children Inheritors
Max	22,930,092	187,488,252	Mean	1,150,886	2,021,162
P99	6,755,637	16,412,652	Mean (X<P99)	1,040,793	1,493,108
P95	2,915,139	5,719,882			
P90	2,110,244	3,882,757	P90/P10	5,5	43
P75	1,279,206	1,781,703	P75/P25	2,6	5,1
P50	775,605	828,840			
P25	494,112	348,783	Std Dev.	1,392,167	8,136,306
P10	386,474	90,321	Std Dev. (X< P99)	904,073	1,915,511
P5	352,982	22,024			
P1	315,848	0	Coeff Var	1.21	4
Min	301,698	0	Coeff Var (X<P99)	0.9	1.3
Observations	463	644			

In average 27 years separate the parent's and the child's death (1872 and 1899).
Measure of wealth: gross levels in francs of 1882.

1.2.1 Estimating wealth elasticity.

A classic measure of wealth reproduction in the economic literature is the elasticity of wealth of the children with respect to the wealth of their parent, namely the intergenerational elasticity (IGE) (see Aaronson and Mazumder (2008), Bourdieu *et al.* (2008a) and Menchik (1979)). This estimator corresponds to the β coefficient of regression equation (1) where W and W^p are respectively the level of wealth at death of the inheritor and of the parent, and X the control variables.

$$(1) \quad \log W = \alpha + \beta \log W^p + \gamma X$$

We use here the same kind of control variables as Aaronson and Mazumder (2008): two dummy variables indicating if the parent and the child are widowers at the time of their death, and two variables for the age of the parent and the child (difference in years to the age of 60). The results are summed up in table 1.10. The two first columns show the estimators of the parameters when the inheritors deceased after World War I are excluded (I) or included (II). In both cases, the intergenerational elasticity is about

0.63. This means that an inheritor with a parent twice as rich as the average parent is 63% richer than the average inheritor. This is close, but lower, to the measures for rich populations in other works. With a data set on U.S. top 1% deceased in Connecticut in the 1930s and their children - and with the same methodology presented here - Menchik (1979) finds an inter-generational coefficient of elasticity of 0.76. Using the TRA sample - a large intergenerational data set on french families - Bourdieu *et al.* (2009) find coefficient of elasticity of 0.79 for the richer 25% individuals deceased between 1895 and 1913 and their children. In our sample the elasticity of wealth a bit lower. This indicates that the capacity of the very rich inheritors to reproduce the position of their parent not so high as we may think. Still inter-generational elasticity levels were significantly higher by the very rich Parisians than by the rest of the French population. The authors have found an elasticity of 0.37 with the entire TRA sample during the XIXth century, and of 0.44 between 1895 and 1913.

Thanks to our data set it is possible to have a measure of the differential of elasticities by gender. 44% of the parents and 55% of the inheritors are women. Estimating the IGE with the same controls as in I and II gives an average coefficient of 0.45 for men and 0.74 for women (statistically significant at respectively 10 and 1%). The position of a son was likely to vary more than the one of a daughter. Moreover the position of the children is more related to the position of their mother rather than their father. This can be seen in the four last columns of table 1.10 which gives the elasticity when the gender of the parent and the children are crossed. The wealth mobility is minimal for "mother-daughter" couples for which the coefficient of elasticity is above 1. On the contrary wealth mobility is maximal for "father-son" couples with an elasticity of 0.45.

An alternative to IGE in order to represent the inertia of wealth hierarchy is to build a mobility matrix. The rows of the mobility matrix represent the destination of the children of a given wealth category (parental wealth at death), and the columns the origin of children of a certain wealth category. To construct it I grouped the parents deceased in 1872 and 1882 by wealth quartiles [23]. I did the same for inheritors. The first line of table 1.11 shows the destination of inheritors of parents in the top 25%. Out of the 104 children, 47 were still in top 25% of inheritors at the end of their life. 57 of them quit the top 25% for lower levels. It is interesting to note that larger downward mobility (From top to third or bottom 25%) are less likely to happen than small ones in this group. This is true also for inheritors of third and bottom 25%. For inheritors from second 25% larger downward mobility (28 go to the bottom) is more likely to happen than smaller one (23 to the third 25%). Looking at the columns of the mobility matrix one can also observe social recruitment of the different groups of inheritors. Basically one can say that large inter-generational trajectories were less likely to happen than smaller ones. Especially

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(23). Those are the years for which we have the maximum heterogeneity of parental wealth, because a reasonable number of members of third 0.5% were observed.

Table 1.10: Elasticity of child wealth with respect to parental wealth.

Dependent variable: Wealth of inheritors at death, in log						
	I (excl. WWI)	II (incl. WWI)	Father-Son	Father-Daughter	Mother-Son	Mother-Daughter
Intercept	4.84**	4.56***	7.05**	5.98**	4.35	-0.94
	(1.65)	(1,77)	(3.20)	(2.32)	(5.74)	(2.58)
Parental Wealth (log)	0.627***	0,63***	0.45*	0.54***	0.61	1.05***
	(0.127)	(0,13)	(0.23)	(0.167)	(0.41)	(0.18)
Widow Parent	-0,54***	-0.49***	-0.47	-0,489*	0.32	-0.21
	(0.19)	(0.193)	(0.34)	(0.25)	(0.51)	(0.27)
Widow Child	0.15	0.167	0.02	0.35	0.45	0.08
	(0.198)	(0.197)	(0.39)	(0.24)	(0.55)	(0.26)
Age Parent	-0.01	0,019**				
	(0.009)	(0,009)				
Age Child	-0.018	-0.07				
	(0.008)	(0,007)				
R^2	0,08	0,07	0.03	0.08	0.02	0.16
Observations	476	503	168	203	127	168

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

bottom 25% recruits very few inheritors of parents in the top 25%. To conclude this part, relative positions within our sample do not change a lot from one generation to the other. This is particularly the case at the top and at the bottom of the distribution. Mobility is higher for intermediary quartiles.

Table 1.11: Mobility matrix.

Children Parents	Top 25%	Second 25%	Third 25%	Bottom 25%	Total
Top 25%	47	27	20	10	104
Second 25%	22	31	23	28	104
Third 25%	17	22	34	31	104
Bottom 25%	18	24	27	35	104
Total	104	104	104	104	416

Top left: Among the 25% richest inheritors, 47 individuals had a parent in the top 25%.

Let us now investigate the accumulation patterns at the top of the wealth distribution. Several measures can be provided. We will first focus on the capacity of the inheritors to die richer than their parent. We will then examinate intergenerational coeffecient of variation of wealth in the three subgroups.

1.2.2 The wealth of the parent and the accumulation of the children.

A simple measure of wealth accumulation is to compute how many inheritors die poorer than their parents. At the french level, we know since the work of Bourdieu *et al.* (2009) that 48% of the French wealth holders deceased between 1895 and 1913 had an estate inferior than their parent's in real terms. The figure is basically the same for the very rich inheritors. In average 47% of the top inheritors were poorer in absolute terms than their parent[24] (see 1.12). There are large differences within the top 1.5%: the majority of inheritors from the very top of the distribution ended up poorer than their parent, This was only 40% for inheritors from the third 0.5%. In this fraction of the rich Parisian inheritors, the proportion of poorer children is much smaller than in the sample of Bourdieu *et al.* (2009).

Because the dispersion of the sample is large, it seemed also interesting to measure the frequency of strong declines in absolute levels of wealth from one generation to the other. For this purpose, I computed the share of individuals dying with an estate worth less than half of their parent's wealth at death. In average it concerns about a quarter of the rich inheritors (see again figure 1.12. This proportion rises even to 30% for the inheritors with a parent in the top 0.5%.

Table 1.12: Proportions of poorer and twice poorer children (%).

rank	poorer child	twice poorer child
Top 0.5%	52	30
Second 0.5%	48	24
Third 0.5%	40.5	23
Top 1.5%	47	26

How can we explain the strong proportion of individuals dying poorer than their ascendant in a growing city like Paris at the end of the XIXth century? I estimated the equation (2) to answer this question, where *Poorer* is a dummy equal to one if the children ends up poorer than the parent, *Top* and *Second* the dummy equal to one when the parent dies respectively in the top and second 0.5%. To do so I added a range of control variables (X)[25] One has already seen that the different levels of wealth were associated with small

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(24). as in Bourdieu *et al.* (2009), this proportion was computed with parents and children dying older than 40 with strictly positive levels of wealth.

(25). The controls are dummy variables equal to one when the inheritor is a woman (variable *Woman* in table 1.13), is over 65 at the time of his death (*Old inheritor*), died in the 1900s (*Belle Epoque*), had a widow parent (*Widow Parent*), was in a sibship strictly larger than two in the inheritance of the parent

structural differences at the generation of the parents. The most important differences are the presence of real estate in the portfolio of the parents, and the number of children inheritors (2.58 in top 0.5% and 2.3 in the two other groups). Another difference is the proportion of widowers in the different groups (46% of the parents in the top 0.5%, 42% in the second and 43% in the third).

$$(2) \quad Poorer = \alpha + \beta Top + \gamma Second + \delta X$$

The study of the effect of the control variables is illuminating. Being a woman has no significant effect on the dependent variable. On the contrary the odds-ratio of variable "widow parent" is equal to 1.49 in the first regression which means that an inheritor is 49% more likely to be poorer than his/her parent if the parent died a widow, all other things being equal. This can be explained by the fact that rich widowers often inherit a part of their spouse's own wealth. Using the same method, one can say that inheritors dying older than 65 are 50% less likely to be poorer than their parent. This is coherent with the age-wealth profile of estates in Piketty *et al.* (2006). Demography plays a large role in downward mobility: inheritors in sibships of 3 or more 3.6 times more chance to be poorer than their parents than the others. Negative sibship effect was also observed by Menchik (1979), which he attributes to the effect of wealth division. This effect deserves a particular attention and will be studied in detail in the second chapter of the dissertation. To finish with the control variables, real estate assets have a significant and negative effect on the capacity of an inheritor to be richer than his parent. If parental wealth was composed of more than 45% of real estate assets, inheritors had 40% chance more to end up poorer than their ascendant. We will come back later in this chapter to this surprising feature. Having controlled for these differences, one can say that, all other things being equal, an inheritor from the top 0.5% is 71% more likely to die poorer than his parent than an inheritor from the third 0.5%. This difference is statistically significant at 5%. Differences from one group to another are therefore not just structural effects. There is a pure effect of the parent's wealth on the capacity of the inheritors to accumulate wealth.

I estimated the effect of the same variables on a dummy equal to one if the inheritor died twice poorer than his/her parent (*Twice Poorer*). Here again inheritors of the very rich have a significantly higher probability to have experienced hard absolute downward mobility. In comparison with inheritors from third 0.5%, those from the top 0.5% are 56% more likely to die poorer than their parent. Real Estate share is no more statistically significant. This suggests that having a parent with a high proportion of real estate provokes small, not large decrease of wealth. This is not the case with the size of the

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(*Sibship > 2*), was deceased after World War One (*WWI*), and had a parent with more than 45% of wealth made of Real Estate (*R.E. > 45%*). I used only dummy variables in order to be able to compute odd-ratios.

sibship: individuals with 2 siblings and more are 3.5 more likely to be twice poorer than their parent. The figure is of the same order of magnitude than in the previous model.

Table 1.13: A measure of absolute downward mobility of the children.

variables	Dep. var.: Poorer		Dep. var.: Twice poorer	
	estim.	odd-ratios	estim.	odd-ratios
Intercept	-0.66**		-1.7***	
	(0.31)		(0.34)	
Top 0.5%	0.54***	1.71	0.44*	1.56
	(0.24)		(0.26)	
Second 0.5%	0,36	1.43	0.32	1.38
	(0,26)		(0.29)	
Old inheritor	-0.63***	0.53	-0.55***	0.58
	(0,2)		(0.21)	
Belle Epoque	-0.31	0.73	-0.22	0.8
	(0.2)		(0.21)	
Woman	0.07	1.07	-0.14	0.87
	(0.17)		(0.18)	
Widow Parent	0.4**	1.49	0.35*	1.42
	(0.19)		(0.2)	
Sibship > 2	1.29***	3.6	1.24***	3.47
	(0,18)		(0.2)	
R. E. > 45%	0.34*	1.41	0.23	1.27
	(0,18)		0.19	
WWI	1,31*	3.7	2.4***	11
	(0,74)		(0.73)	

Regressions include fixed effects for parent's generation
Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

1.2.3 Different paces of wealth accumulation among the very rich.

To compare the different paces of capital accumulation from one generation to another, I computed the increase of mean and median wealth in the three groups of the top 1.5%. I excluded the inheritors deceased after 1915 here to have a measure of peace time wealth accumulation. Splitting the top 1.5% is again very instructive here (see table 1.14). Parent-child rates of increase are much higher in the third top 0.5% than in the two others. Mean wealth almost doubles there whereas it jumps of 72% in the first 0.5% (actually two thirds of the mean increase in the top 0.5% is produced by our top 4 inheritors) and of 50% in the second. This difference could be created by the heterogeneity of spacing between the death of the parents and the inheritors. Remember indeed that fewer parents of lower wealth groups were observed in 1862 and 1867, and that observations of inheritors' wealth is truncated in 1917. By construction, inheritors from the lower groups have therefore

parents who died later than the others in average. To compensate this bias, I computed the average difference in years between two generations for the three groups. The difference (2 years) turned out to be smaller than expected. Once the rates are corrected, increase are +72% on top, +53,5% for the second and +106% for the third group.

Results in median wealth are more interesting because they are not influenced by the degree of dispersion within the different groups. Median for top 0.5% decreased by 5% and increased by 5.5% in the second group (which corresponds to an increase of 6% on a 28 years period). The median inheritor of the third group increases much more, with a rate of +35% (38% after correction). It seems again that inheritors within the top 1.5% have very heterogeneous behaviours of wealth accumulation. The large difference between mean and median increase shows that in the three subgroups a large share of the average in crease is actually created by a very limited number of individuals.

Table 1.14: Further information on wealth distributions.

	Parents			Inheritors			%age increase		
	Median	Mean	av. Year	Median	Mean	av.Year	Median	Mean	Diff. (years)
Top 0.5%	1,327,116	1,756,802	1871	1,263,232	3,025,947	1899	-5%	+72%	28
Top 0.5% (2)	1,319,496	1,735,426	1871	1,259,345	2,138,904	1899	-5%	+23%	28
Second 0.5%	598,889	615,506	1873	632,555	927,284	1899	+5.5%	+50%	26
Third 0.5%	387.096	429,524	1874	522.917	854,365	1900	+35%	+99%	26

all values are in Francs 1882. Top 0.5% (2) excludes the top four inheritors.

The whole picture: Social *déclassement* in a developing city.

So far we just compared the rich inheritors with each other, within the top fractiles. An original contribution of this article is to put the relative performance of top inheritors in the Parisian perspective between the 1860s and World War One. In other words one would like to know whether inheritors of very wealthy parents managed to stay at the top of the wealth distribution, or if they were outpaced by children of poorer parents. To measure the eventual social déclassement - or relative downward mobility - one has to be able to situate our population in its social environment, here the city of Paris. Thanks to the works of Piketty, Postel-Vinay and Rosenthal, we now dispose of robust measures on the evolution of top fractiles in Paris in the long run. This gives an observation of what happens in Paris from generations to generations in an aggregated perspective. Although much work will be needed to understand all the dimensions of the making of inequality - assessing the role of demography, capital gains, saving, consumption - the data set on Parisian estates allow to have an idea of the pace of wealth accumulation in average at several levels of wealth.

Individual wealth accumulation was fast in Paris after 1860, following the industrialization process Daumard and Codaccioni (1973). According to the data on Parisian estates, one needed to command at least 340.000 francs [26] to be part of the top 1.5% in 1862 but more than 500.000 in 1902 or 1912. During the same period the threshold to be part of the top 0.5% sky-rocketed from 750.000 francs to more than 1.5 million. In a developing city like XIXth century Paris inheritors who do not accumulate sufficiently rapidly are very likely to be ejected from the top fractiles and experience a social *déclassement*. To better understand this phenomenon I have tried to determine in which fractile each inheritor ended up at the time of his/her death. This implied to compute an annual value of the fractile's thresholds. I have first determined the threshold of top percentile groups (P95, P96, P97, P98, P98,5, P99, P99,5 and P99,9) for the years of the Paris estate data (1862, 1867, 1872, 1877, 1882, 1887, 1892, 1902 and 1912). These figures are summed up in table 1.23 in the appendix. Between two years of observation I have supposed a simple linear evolution.

The figure 1.2 shows in a synthetic manner the position of the inheritors of the top 0.5% within the Parisian hierarchy of wealth. I selected a semi-logarithmic scale ranging from 10,000 to 50,000,000 francs which flattens the increase of wealth levels. But it is the only way to represent the bulk of the inheritors and their very heterogeneous level of wealth [27]. By construction all the parents are above P99.5% in 1862, 1867, 1872 and 1882. One directly sees on the graph that a substantial part of the inheritors (actually 55% of them) ends up below P99.5 at the time of their death. About a quarter is out of top 1.5% too. 8% of the inheritors of this group end up bellow P95, which remains approximatively around 90,000 francs over all the period. The proportion of the descendants of the top 0.5% that end up with "middle class" levels of wealth is rather low. The bulk of the inheritors managed to maintain in the top 5% of the wealth holders. This makes sense when one considers the very high degree of wealth inequality in Paris.

Figures 1.3.6 and 1.3.6 in appendix of the chapter give the same representation for the two other groups of the top 1.5%. 8.5% of the inheritors from the second 0.5% and 12% of those from the third 0.5% end up below P95. Respectively 45 and 50% of the inheritors are out of the top 1.5%. Here again social *déclassement* is of large amplitude but the bulk of the inheritors manage to maintain their position at least in the top 5% in Paris.

We now know that a substantial fraction of the inheritors could not reproduce the relative position of their parent. At the same time some inheritors experienced a sharp upward relative mobility. For example 19.6% of the inheritors from the second 0.5% ended up in the top 0.5% at the end of their life. This was also the case of 17.8% of the

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(26). Sums in francs are again expressed in francs 1882.
(27). Two inheritors are still above the graph and fifteen below.

Figure 1.2: A representation of the wealth of parents of top 0.5% and their descendants.
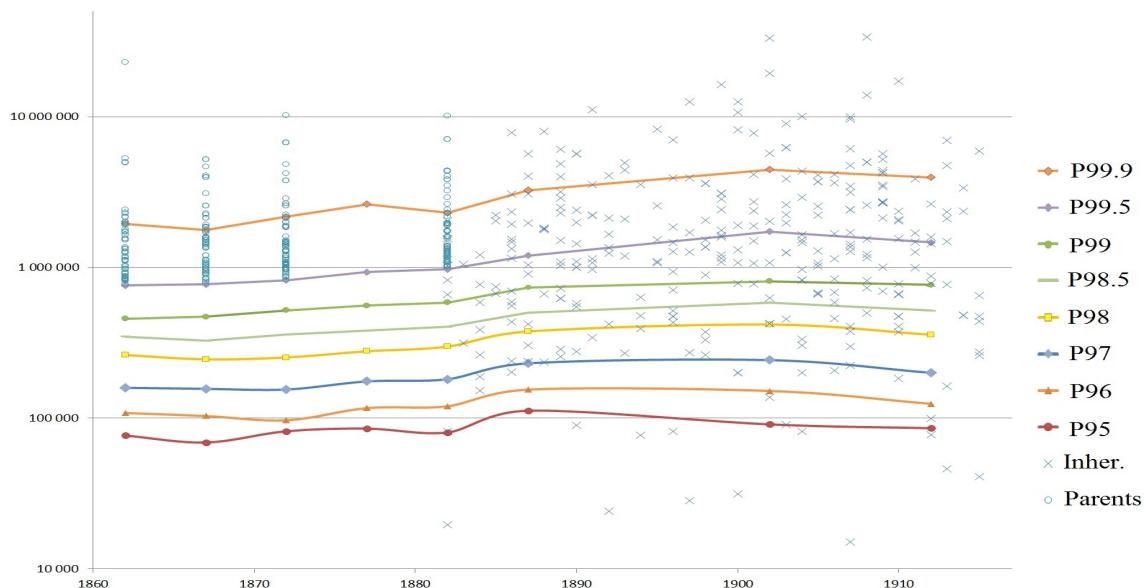
inheritors from the third 0.5%. What can we say about the relative position of the average inheritor? First between 1872 and 1902 mean wealth of the Paris' top 0.5% increased of 132% in real terms. By comparison the inheritors of individuals located in Paris' top 0.5% were in average just 73% rich than their parent. Inheritors from second 0.5% also under-performed in comparison to Paris second 0.5%. inheritors from the third group performed better in average (+99% versus +70% for the mean wealth of the P98.5-P99 in Paris).

In order to have an accurate measure of the relative performance of inheritors I have built two indicators: one of the relative position of the parent, the other of the relative position of the child. I first computed the mean value of the three subgroups for the years between 1862 and 1915 [28]. The values of the years of the Paris estate data set are summed up in table 1.24. The relative position of a parent of a group α deceased in year i is equal to the wealth of the parent W^p divided by the average wealth of the group that year $W_{\alpha(i)}$. Table 1.15 gives the average ratio of the parents by group of wealth. We can see for example that this ratio was 1.11 for the parents of the third 0.5%. This means that the parents of our sample were in average 11% richer than the average member of the third 0.5%. The relative position of a child of a parent of group α is $\frac{W_e}{W_{\alpha(j)}}$ so the ratio between individual wealth at death W_e and the mean wealth of group α in year j. If the ratio of the parent and of the inheritor are the same I consider that the inheritor

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(28). For years 1913 to 1915 I kept the same averages as in 1912.

Table 1.15: Average relative position of Parents and Children.

	Parents ($\frac{W_p}{W_{\alpha i}}$)	Inheritors ($\frac{W_e}{W_{\alpha j}}$)	Evolution
Top 0.5%	1.02	0.92	-9.4%
Top 0.5%*	1.02	0.74	-27.1%
Second 0.5%	1.08	1	-7.4%
Second 0.5%*	1.09	0.88	-19.1%
Third 0.5%	1.1	1.4	+26.6%
Third 0.5%*	1.09	1.27	+16.5%

Average wealth at death of the parents in the top 0.5% was 1.02 times the average wealth of top 0.5%.

Average wealth at death of children was 0.92 times the average wealth of top 0.5% that year.

*without 4 richest children.

has neither gain nor lost any position across time.

In table 1.15 we see that this ratio was 1.4 for the children of third 0.5%. This means that the average inheritor was 40% richer than the average wealth of third 0.5% at the time of his death. For this group we can say that the relative position of the children increased over time of 26.6% (column 3). On the contrary the relative position of the inheritors in the other groups decreased. The decrease is larger for individuals of the richest group: the parents were 2% richer than the average of the top 0.5%, whereas the inheritors are more than 8% poorer. The position of the inheritors of the second group decreases by about 7%. Excluding the four richest inheritors deteriorates significantly the inter-generational evolution in the three groups. But the evolution stays positive in the third 0.5%.

At the end of this second part we command a measure of relative performance of wealth accumulation of different sub-groups of top 1.5%. Inheritors of the top 0.5% are more likely to be poorer than their parents and they experience a relative decline in the city of Paris. The inheritors of the second 0.5% also experience in average a relative decline of social position. The wealth accumulation patterns in the third 0.5% are very different. The inter-generational increase of wealth is more pronounced there and their relative position improves over time. As a conclusion higher levels of wealth are associated with lower accumulation paces. At the end of the XIXth century the inheritors of the very rich individuals (first but also second 0.5%) accumulated wealth *in average* at a rate that was significantly lower than in inferior wealth groups. Of course this has to be completed with measures of wealth accumulation in other wealth groups in Paris. But it seems that a significant share of the very wealthy inheritors overrun in a period of increase of the top

estates.

In the last section I would like to go further in the explanation of the under-accumulation of the very rich. I will try to disentangle the effect of differential saving and the effect of differential capital gains. We will see that a large part of the difference between the top 0.5% and the other groups were due to the characteristics of the goods that were inherited and less so to different accumulation behaviours. A larger attention will be given to the question of real estate ownership that was very common in the very wealthy families and less so in others.

1.3   Reallocation, accumulation and path dependence.

In this section we will try to enter in the process life time accumulation patterns of the inheritors. What I want to do here is disentangling the different dimensions of the increase of wealth in the long run. For simplicity I consider that inheritors can become richer by two channels: capital gains of inherited assets and saving. Capital gains are the pure effect of the evolution of the price of the inherited assets, whereas saving corresponds to a decision of the inheritor. I use extraordinary rich data from the *archives de l'Enregistrement* to separate these two dimensions. I will show here that saving rates were particularly low in the top 1.5% in average. The average wealth at death of the inheritors corresponds roughly to the ex-post value of all inheritance received. Second inheritance of real estate had a significant negative effect on wealth at death through the capital gain channel, but not on the saving patterns of inheritors. Third the bad performance of the inheritors of the top 0.5% are more explained by the capital gain channel than by the saving channel.

These patterns are suggested by the very rich data we have on the sub-sample of inheritors who died married with assets jointly owned with their spouse. As it has been presented in Piketty *et al.* (2011) inheritances of this kind enable us to reconstruct a great part of the individuals history. The most common system of joint property at that time was called the *communauté réduite aux acquêts*. This system makes a clear distinction between which asset is owned individually and which is jointly owned by the couple. All the assets bought and all the revenues earned by the couple during the marriage are jointly owned and part of a communauté d'acquêts or community of acquired goods. The assets accumulated before the marriage or inherited during the marriage are not part of the joint property. These are called the *biens propres* or own goods of each member of the couple. If the members of the couple have sold some of their own goods during marriage then the value of the sale will have to be taken back from the community of acquired goods. Conversely if the members of the couple have used some cash on an own good (to improve its value for example) then this value must be taken back to the community of acquired goods.

In other words in an inheritance with joint ownership between spouses we can observe in the general case:

- The *biens de communauté*. The assets that are jointly owned by the two spouses. These are called the community goods. The source provides the price of these assets *at the time of the death* of the first individual of the two spouses to die.
- The *reprises en nature* of the deceased only. The assets that were *inherited* during the life of the individual and were *kept*. These are called the *reprises en nature*. The source provides the price of these assets *at the time of the death of the inheritor*.
- The *reprises en deniers* of the two spouses. These are the *inherited* assets of the spouses that were *sold*. The source provides the price of these assets *at time of the sale of the assets* which is not known. They include also the dowries received by the individual.
- The *récompenses* of the two spouses. The money in cash that was used by a member of the couple for own purpose (e.g. reparation of own building, payment of inheritance tax on own asset).

The separation of these four blocks could be made in a sufficiently large number of inheritances. 82% of the inheritors who were in couple at the moment of their death were under the system of community of goods. Decomposition of inheritance was feasible for the 208 successions for which all photographs were taken and stored [29]. In 23 of them the whole estate declaration was actually replaced by a notarial document. In 158 of them (76% of the cases) there was a full description of all the assets inherited, both sold and kept. Finally in 27 of the estate declarations the description of the sold inherited assets was replaced by a notarial document giving their aggregated value (it was common for individuals deceased in the 1890s, less so in the 1900s). This makes a total of 185 inheritances with a measure of kept and sold inherited assets.

1.3.1 Did the very rich inheritors accumulate some wealth on their own?

In average the raw value of sold inheritance was 476,550 francs. Kept inheritance amounted to 756,283 francs. Wealth at death in nominal terms amounted to 1.337 million francs. With this information we can try to have an idea of the share of the inherited assets in total wealth. I made the basic hypothesis that inheritance was sold at the middle of the time between the parent's and the inheritor's death [30]. The value in francs of 1882 of the sold inheritance was 514,392 francs. Kept inheritance amounts to 823,219 francs.

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(29). This excludes especially the years of the Paris estate data set (1882, 1887, 1892, 1902 and 1912) in which no photographs was taken at all.

(30). Alternative hypotheses were tested: average sale at the death of the parent, five years before the death of the inheritor. This barely affected the results considering the very low levels of inflation at that time.

This makes an inherited wealth of 1,377,611 francs. By comparison the real value of wealth at death was 1,534,934 francs. According to this computation the inheritors have sold 38% of the value of their inheritance. More than half of the wealth at death is made of the very assets that were received and *kept*. With this computation the ex-post value of inherited wealth (which we call I_e) amounts to 87% of the wealth at death (W) of the inheritor. In other words the inheritors of the top 1.5% managed to end up with an estate that is just above the total ex-post of inherited wealth. The ratio $\frac{W}{I_e}$ was indeed equal to 1.13. This ratio of *pure accumulation* was about the same in the top 0.5% (1.15) and in the rest of the top 1.5% (1.14) [31]

We want to emphasize the fact that the assets that were inherited and kept were very rarely improved during the life of the inheritor. This means that the ex-post value of the inheritance depend primarily on the evolution of the price of assets. It is true that some inheritors did spend a large part of the community resources in order to construct or extend a building. For example Antoine Duruflé - the owner of 4 million - built a hotel worth 400,000 francs (in current francs) in 1909 in the rue de Prony on a land that was inherited. In some cases where an inherited building was shared with siblings, inheritors spent money to acquire it in its entirety. These two phenomenons increase the value of the inherited assets although they correspond to an investment of the inheritor. The observation of the récompenses due by the inheritor to the community of goods revealed that this practice was actually seldom. Spending on inherited real estate asset was 31,000 francs in average [32]. In average - considering all the inheritors - we can consider that about 20,000 francs were invested in the inherited goods themselves. This is a huge sum in comparison with the median Parisian estate but a negligible one in comparison with the ex-post value of the kept assets of the top 1.5% inheritors.

From this first step we can draw an important conclusion: the average inheritor of the top 1.5% reallocated a large part of their inherited portfolio but to end up with a wealth at death that is just slightly above the ex-post value of the inherited assets. Inheritors of lower groups of the top 1.5% did not have ratios of *pure accumulation* ($\frac{W}{I_e}$) higher than the others.

1.3.2   Portfolios with large and illiquid assets

A large share of the wealth accumulated by the parents in the top 1.5% was constituted of real estate. Among the 158 individuals for which I have full information on the *reprises et récompenses* 100 (62%) had inherited some real estate. 38% of inheritors had received

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(31). The absence of difference is maybe due to the arbitrary bounds of the groups and to the small size of the sample. There were 103 inheritors from the top 0.5% and 93 from the second and third 0.5%. We test the relationship between wealth of the parent and pure accumulation in the last section of this chapter.

(32). Computation realized on the 100 inheritors with real estate.

0 real estate at all, 32% one asset, 16% two assets and 14% more than two. In total, 172 real estate assets had been inherited. The average value of them - as quoted in the documents - was about 480.000 francs. This corresponds roughly to the amount of wealth necessary to be part of the top 1% in 1882 and the top 1.5% in 1902! To give a more concrete example, one of our inheritors - Eugène Try - owned a building of 5 stocks (the last stock is actually a *mansarde* i.e. an attic room) with a front on the rue Tronchet and a front in the rue Vignon in the 8th arrondissement in Paris. The first floor was occupied by 4 different shops. In each other floor it had two apartments that were rented between 2500 to 3000 francs a year. Considering that the average wage of qualified worker was about 1,000 francs to 1,500 francs a year in 1890 in the département de la Seine (de la France (1900)) this apartment was affordable only to people with large wages or estates. The whole building was worth 560.100 francs in 1905.

In some cases inheritors did not own the totality of the building. They were co-owners - usually with siblings or cousins - of the totality of the building according to a regime of joint property (régime d'indivision). This concerned about 28% of the buildings. Figure 1.3 shows the distribution of real estate by value of asset and the value of the share owned by the inheritors.. Multiple co-ownership of real estate was very seldom in Paris before World War II (see Topalov (1987)) and property of real estate was very concentrated as we have seen earlier. Inheriting real estate meant inheriting a whole building either individually or jointly with co-inheritors. 53% of the assets and 43% of the shares are above 300,000 francs. Respectively 12% and 7% are above 1 million. One has to be careful here with the price of inherited assets as it appear in the declarations. If the inherited assets was sold by the inheritor (then it appears in the *reprises en deniers*) we observe the raw price of the sale, at the date of the sale, which we usually don't know. If the building was not sold (then it appears in the *reprises en nature*), we observe the evaluated price at the death of the inheritor. Giving average numbers is naïve, but it still gives an order of magnitude of the size and price of the inherited building.

Figure 1.3: Distribution of inherited real estate, by raw price.
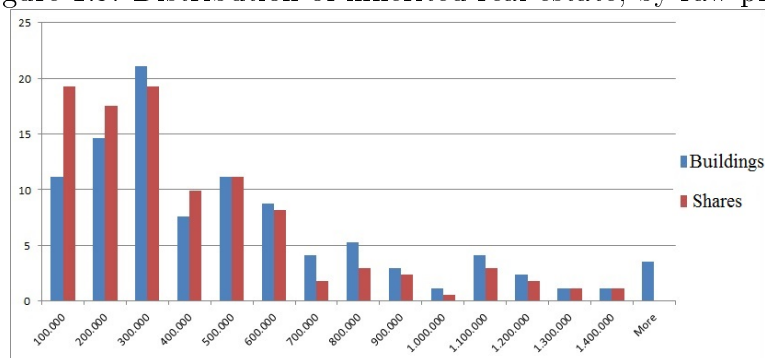
Real estate was not mainly used for accommodation. Most of the buildings were almost rented. The déclarations de succession provide the official address of the departed as well as the address of the real estate he/she owns. Among the very rich, it seems that 36% of the inheritors owning real estate were living in their own building at the moment of their death [33]. But a lot of individuals owned several buildings in Paris. Therefore, the proportion of individuals with some real estate they didn't occupy was above 80%. With the information available in the déclarations de succession, it is impossible to know whether those building were actually rented or if they remained vacant. But it is clear that real estate ownership was not primarily motivated by housing among the very rich. It was certainly an investment and source of revenue among others.

The inheritors migrated to the west of the city, whereas the inherited assets stayed in the central area. Figure 1.4 shows the location of all inherited real estate (black squares), and the address of inheritors at the moment of their death (red circles). The inheritors lived in the western and southern part of Paris whereas their inherited real estate was located mainly in the center of the city. Most of the buildings are located in the territory of the city of Paris before 1860, more precisely in the areas where the parents lived (cf 1.1). The inheritors probably moved to the new neighborhoods - with larger or more modern apartments - that were built in the 8th, 16th and 17th arrondissements at the end of the XIX century. They rented their apartments probably to individuals of lower wealth levels as the rich population massively moved to the west of the city [34]

Real estate assets of the very rich were large, located in the center of Paris. They also seem to have been very illiquid assets. According to the data on individuals married with joint property inheritance of real estate was kept much often than other kinds of assets. I made a distinction between real estate, cash and financial estate in the inheritance that was sold and kept. Out of 172 real estate assets inherited, just 24 were not kept by the inheritors. 22 were sold, and 2 were expropriated by the city of Paris. 85% of the goods remained in the inheritor's portfolio. If we take the crude values observed in the succession we see that inheritors sold less than 20% of the total value of their Parisian real estate. As for securities, a lot of private and public bonds and actions appear in the reprises en deniers. Sold securities are worth 49.6% of all inherited securities. Still a large share of the bonds and stocks inherited stayed in the inheritors portfolio. The presence of real estate just increased the path dependency of portfolios.

Figure 1.16 sums up the composition of inheritance (with raw prices) and how it was used by the inheritors. The average inherited wealth was constituted by 8% of dowries, 35% of real estate and 56% of financial assets. The bulk of real estate value remains in

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(33). For the parents who died with real estate in 1872 and 1882, this proportion was as high as 46%.
(34). maps of the location of the top 2% in Paris in 1872, 1882, 1912 and 1922 were not reproduced here but they show a very strong migration of these population that desert the Xth and IXth arrondissement to move massively to the VIIIth and XVIth.

Figure 1.4: inherited real estate and address of inheritors at death
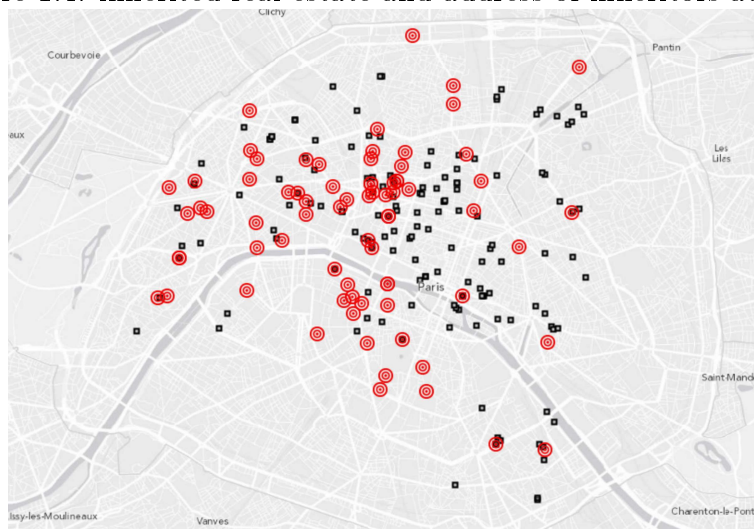
the inheritor's portfolio. In the end the reallocation concerns 38% of inherited goods. These computations will have to be corrected by an evaluation of the capital gains of the different type of assets. But a 20% increase in the real value of assets between the death of the parent and the death of the inheritor is a maybe a upper bound. Even in this case, reallocation is just 46% of total wealth inherited. The majority of the asset value is kept by the inheritors.

Table 1.16: Inheritance and reallocation.

Type of good	Cash	Real Estate		Securities	
Allocation		Sold	Kept	Sold	Kept
average by individual	9	6	29	28	28
same by asset type	9	35		56	

Moreover individuals who inherited real estate tended to behave differently than the others. They sold 54% of the value of their securities. It was just 46% for the rest of the inheritors. We can imagine that they sold more financial estate because they couldn't do it with their real estate illiquid assets. Those who inherited real estate were also more likely to buy new real estate during their life. 23% of individuals inheriting 0 real estate bought some during their life (9 over 32%, see Figure 1.3.2). This figure was 30% for the others. In average few individuals bought real estate. The proportion of these assets decreases from 46% of portfolio of the parents to 31% of the wealth at death of the inheritors. It is to note that inter-generational coefficients of correlation of the share of

real estate are very high (0.47) for the 158 inheritors with full details and their parent. The average figure is still high but a bit lower for the whole sample of inheritors (0.37). The difference is due to the fact that our 158 individuals died closer in time to their parents. By construction, they were the first member of the couple to die, and so were younger (59) than the average inheritor (65).

Figure 1.5: Buying and Selling real estates
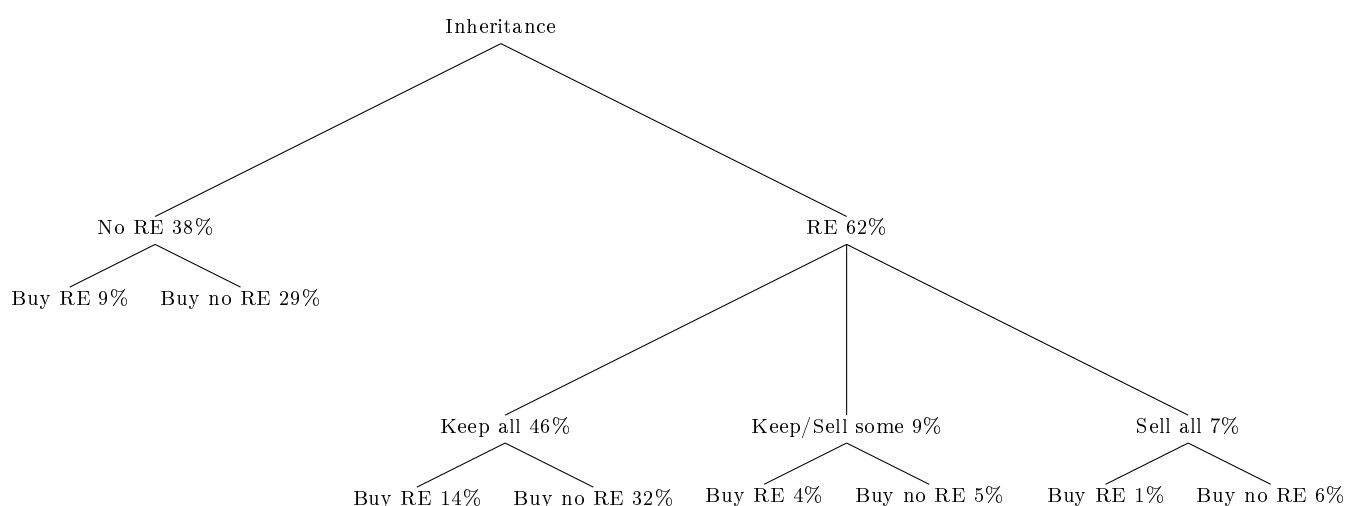
Reallocation of real estate was unlikely in average as we have seen. But this hides large differences by size of assets. I focused on the successions after 1902 where all the inherited real estate assets located in France can be observed. Figure 1.6 shows the distribution of the kept and sold real estate by the price of the asset. A larger proportion of sold assets are located at the left of the distribution (assets worth less than 150,000 francs). Actually, 68.5% of all inherited assets under 200,000 francs had been sold, and just 25% of the assets over this level. Selling real estate was possible for small buildings. This contradicts the theory according to which transactions in the real estate market were frozen by the level of taxes. This theory was very popular at that time (see Daumard (1965) put is not supported by the data. The total tax paid on a transaction was high but it was flat [35] so the rate of taxation was the same for small and large buildings. If this theory was true there is no reason why so many small buildings and so few large buildings were sold.

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(35). People making a transaction concerning real estate had to pay a tax named *droits de mutations à titre onéreux* that was a fixed 6.5% of the value of the asset. On top of it, notary notarial fees had to be paid, and represented 1 to 2% of the sale. This, added with other transaction costs - above all to make the sale public and to find the appropriate client - represent about 10% of the value of the building.

Figure 1.6: Distribution of kept and sold real estate, by raw price.
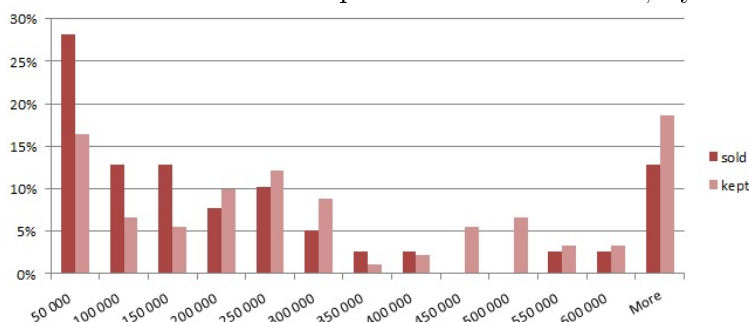
Another hypothesis is that the value of these buildings were so high that there was simply no demand for it. Very few large buildings were sold in a regular year (see table refventesimmeubles). Above 100,000 francs, and more so above 200,000 francs, almost no estate was sold in all french territory during a year. The potential buyers for such large estates were particularly few. It was not possible at that time to divide a building into a condominium. The legal definition of the condominiums - with a private property of the apartments and a joint property of the rest of the building - was defined in 1938. Before this date it was just possible to own entire buildings, or to have a joint property of the whole building. For this reason it was certainly very difficult for members of the top 1.5% which had very expensive buildings to sell their assets. Potential buyers were themselves in the top 1.5% which is a very narrow population. As a consequence the inheritors were stuck - alone of with their siblings - with the real estate accumulated by the last generations. Having inherited very luxurious buildings in the city of Paris was not a curse, but it was certainly difficult for those inheritors to find a buyer.

When the price and yields of real estate were goods as in Paris during the Second Empire (see Daumard (1965)) real estate illiquidity was certanily not an issue for the very rich families. It was not the case in periods of real estate crisis like the end of the XIXth century. This had detrimental effects on the capacity of the top 1.5% to maintain its position over time and can explain in part its economic decline. The period 1882-1914 is interesting because it enables us to observe this effect during peace time. It gives an idea of the potential redistributive effects of the real estate crisis of the Inter-war period.

1.3.3 The crisis of 1882 and its consequences.

In the context of the Great Depression of the last quarter of the XIXth century, the year 1882 was a particularly black one for the French economy. It is famous for the bankruptcy of the Union Générale, one of the largest French Bank at that time. This was also the year of the burst of the real estate bubble in Paris. According to Topalov

(1987) the number of new constructions attained a peak in 1882 and decreased sharply after this date. Quantities exchanged dropped, the prices stopped to increase and even went down after 1896. It seems that this crisis hit in particular the luxury real estate or *logement bourgeois* in french [36] Considering the evolution of rents and the increase of vacancy rates for high value real estate [37], it seems to have been harder and harder to find tenants to fill the luxurious buildings in Paris.

The period before World War I seems to have been characterized by low yields of real estate in France, although not a lot of works have focused on this issue. Bonneval and Robert (2010) tried to compute the internal rate of return of investment in high value real estate in the center of the city of Lyon until the end of the XIXth century. Using the accounts of a firm specialized in the management of buildings the authors go deep into the analysis of the costs and benefits of renting real estate: effective rents perceived, construction costs, service charges. They end up with a rate of a median rate of 2% each year between 1890 and 1914. This is lower than the yield of government bonds at that time (3%) and of private company stocks (between 4.5% and 5.5% [38]). According to them the profitability of real estate ownership was at historical low before World War I. The French real estate market of large cities was maybe not fully integrated and differences of yields can exist between Paris and Lyon. But the available works on this topic seem to agree that real estate was not as profitable as it used to be in the 1840-1880 in city centers [39].

For the city of Paris Topalov shows that the rents started to decrease in real terms in the 1890s. He doesn't provide an average evolution of the prices of the *logements bourgeois* but he has built a map on the evolution of real estate prices by neighborhoods between 1878 and 1910. This map is reproduced in figure ?? in the appendix. We can see that the prices were particularly decreasing in an area between le Louvre, the gare Saint-Lazare, the gare du Nord, and the Bastille. In the neighborhood of the periphery of the city - those with a less dense but faster growing population - the prices of real estate continued to increase. An important part of the buildings inherited by the inheritors from the top 1.5% was located in this area. This had certainly an impact on the inheritors' wealth at death since this kind of assets was kept by inheritors. In the next paragraphs we would

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(36). Starting with fiscal categories Topalov differentiates buildings with *logements ouvriers* (with rents per apartment below 500 francs), the buildings with *logements semi-bourgeois* (from 100 to 1,000 francs), and those with *logements bourgeois* (with rents superior to 1,000 francs). Buildings owned by the rich inheritors are surely for the most part in the third category. A building of 5 stock including 2 apartments rented at 1,000 francs will be estimated at 200,000 francs by the fiscal administration.

(37). According to census data quoted by the author, vacancy rates for logement bourgeois are 2.5% in 1881, 7% in 1891, 9% in 1896, 5,6% in 1901, 2.8% in 1911.

(38). According to the computation of Le Bris and Hautcoeur (2010) for french stocks between 1854 and 1913

(39). For the period 1840-1914 Friggit (2009) has determined that the average yield of Parisian real estate was just below 5%.

like to determine whether real estate ownership of the parents had a significant effect on the wealth at death of the inheritors.

1.3.4 The negative effect of inheriting from a real estate owner.

The role played by assets characteristics in the economic success of inheritors is seldom studied because of lack of data. Tanks to the richness of the Paris data set and of the estate declarations it was possible to make a first step in this direction. For all the parents of our sample, we could observe the proportion of real estate assets in total portfolio at death. For the parents of generations 1872 and 1882, there was also information on the presence and proportion of different kinds of financial and monetary assets, namely current accounts, government bonds, actions, obligations, etc. We also know if the assets concerned governments and firms that were domestic or foreign). I basically use the composition of parents' portfolios as a proxy of the composition of the inheritors' inherited wealth. The composition of these two elements will differ for many reasons [40], but we can imagine at least that the wealth composition of one parent is a good proxy for the wealth composition of the two parents.

I estimated several econometric models with Ordinary Least Squares to measure the effect of real estate ownership of the parent on the wealth at death of the inheritor. The different estimations are summed up in table 1.21. In the different models I regressed the wealth at death of the inheritor on the share (from 0 to 1) of real estate in the parent's portfolio (*Real Estate*) and on a range of control variables. These variables are the level of wealth of the parent (*Parental Wealth*) in francs of 1882, the age at death of the inheritor (*Age at death*), the size of the sibship (*Sibship Size*), a dummy equal to one if the inheritor is a woman (*Woman*) and a dummy equal to one if the parent was a widow at the time of his death (*Widow Parent*). Fixed effects by year of death of the inheritors and by year of death of the parents were also included. Model (1) is estimated with the observations on all inheritors, all deceased before World War I. The estimator of the variable *Real Estate* is large and negative. It is significant at a level of 10%. It can be interpreted as the average difference in wealth at death between inheritors of parents with 0% real estate and inheritors of parents with 100% real estate. The difference amounts to 1.4 million francs, which is very large, considering that wealth at death of the average inheritor is 3 million francs. Because the heterogeneity of wealth is very large I estimated the same model without the four richest inheritors. The estimator is still large, negative and it is

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(40). First or all in succession declarations it is impossible to know who among the inheritors will get each single asset. The documents list the different assets and inheritors of the deceased to determine the rate of the tax to be paid. But the fiscal administration doesn't care much on the familial arrangements concerning the fate of each single assets. Inheritors can bargain over the type of assets that they want to inherit, without any administrative control, although they legally have to respect strict equality between the different inheritor's shares. Notarial documents on the sharing of wealth at death could be used in the future to observe the distribution of assets.

significant at the level of 1%. Inheritors of parents with 0% real estate have in average more than 685,000 francs more than those of parents with 100% real estate.

Model (3) - estimated with the inheritors of parents deceased in 1872 and 1882 - gives about the same results: an negative effect of 540,000 francs in average, significant at the level of 5%. In the model (4) - also with the same individuals than in the model (3) - I included four more variables concerning the parent's portfolio: the percentage of stock in financial wealth (*Stock*), the percentage of foreign stock in financial wealth (*Foreign Stock*), a dummy variable if there are more than 20 assets in the portfolio of the parent (*Asset Diversification*) and a dummy variable if the parent directly owned a company. The share of real estate in all wealth and the share of stock in financial wealth are both significant at the level of 10%. In order to sum up these effects one can say that at a given level of wealth of the parent the share of financial wealth had a positive effect on wealth at death of the inheritor. At a given level of financial wealth of the parent the fact of having more stock has also a positive effect on the level of wealth of the inheritor. The share of foreign stock is very negative but not significant. Portfolio diversification and company ownership have smaller and non significant effects on the wealth at death of the inheritor. This last model was able to capture a third of the variance of the sample. It is to note that in this last model fixed effects by year of death of the inheritor could not be included.When then these effects are added to the model the estimator of the share of stock is no more significant although its sign stays unchanged.

Table 1.18 shows the negative effect of real estate ownership with more descriptive tools. I have separated the individuals whose parents had a lot of real estate (more than 80% of total wealth) from those with few real estate (less than 20%). The first category represents a quarter of the total, the second the third. In each of the three groups real estate ownership is associated with a lower increase between the two generations. The conclusion is the same when one compares the mean level of wealth or the median level of wealth of the parent and the child.

1.3.5   A *price effect* of real estate.

This is the first evidence that asset characteristics have a large scale effect on a social category. But do we capture an effect of the preferences or an effect of the assets themselves? In recent articles (Charles and Hurst (2003), Arrondel and Masson (2003)) portfolio structure of the parent is associated with different preferences of the parent. For example stockholders may transmit a lower risk aversion to their children which has a positive effect on their level of wealth. Is it the same here? One can imagine that if real-estate owners were less educated, had sons that receive less education or worked less often and lived as "rentiers", or if they had daughters that married more often less educated individuals this could explain what we the relative decline of their inheritors. I tried to see whether the sons of the real estate owners were significantly different from

Table 1.17: Effect of inheritance structure on the inheritor's wealth at death

Dependent variable: Wealth of inheritors at death (francs of 1882)				
	(1)	(2)	(3)	(4)
Intercept	-3,933,200	-430,107	112,163	-20,572
	(3,223,524)	(444,637)	(439,986)	(457,674)
Parental Wealth	1.1***	0.53***	0.79***	0.79***
	(0.23)	(0.06)	(0.07)	(0.07)
Sibship Size	-453,128**	-204,531***	-305,947***	-328,764***
	(208,835)	(53,376)	(58,840)	(58,795)
Age at death	72,419***	36,169***	26,518***	24,491***
	(23,867)	(6,088)	(5,991)	(5,879)
Woman	74,889	-14,810	-23,528	-51,477
	(635,694)	(162,078)	(162,603)	(165,338)
Widow Parent	-1,224,256*	-276,414	-218,895	-241,763
	(677,679)	(172,529)	(171,639)	(175,950)
Real Estate	-1,473,349*	-685,167***	-540,521**	-387,493*
	(835,972)	(212,526)	(214,310)	(220,836)
Stock				560,796*
				(299,055)
Foreign Stock				-1,250,941
				(1,238,385)
Asset Diversification				-89,015
				(183,800)
Company				-333,741
				(399,633)
F. effects by year of death (children)	Y	Y	Y	N
F. effects by year of death (parents)	Y	Y	Y	Y
R^2	0.13	0.237	0.323	0.346
Observations	634	631	412	397

Observations: all inheritors in model (1), all inheritors but the four richest (2),
inheritors from generation 1872 and 1882 in models (3) and (4)
Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Table 1.18: Comparing inheritors of parents with more than 80% and less than 20% real estate.

Inheritors	Mean		Median	
	>80% R.E.	<20% R.E.	>80% R.E.	<20% R.E.
Top 0.5%	+16%	+28,5%	+0%	+28%
Second 0.5%	+8%	+72%	-28%	+18%
Third 0.5%	+65%	+143%	+28%	+86%

the others. Informations on work participation and level of education are rather scarce in the succession declarations for reasons already mentioned. I could still observed the declared occupation of about 200 fathers and 300 sons in their own succession declaration or death certificate. There is no difference between fathers with no real estate and the other[41]. Proportions of professional, traders and rentiers were basically the same. As far as inheritors were concerned, the proportion of "professionals" was about the same among sons of real estate owners and the others (22%). Almost half of inheritors declared no profession at all. This proportion was a bit higher for the sons of real estate owners (41% versus 49%). We still lack observations and econometric strategy to correct for large endogeneity issues of occupation and wealth of the inheritors. But the absence of difference in the share of professionals at both generations suggest that real estate owners were not dramatically different regarding human capital accumulation and occupation choices.

We have seen that the central neighborhoods of Paris were more hit by the crisis of 1882 according to Topalov. Do we see this price effect in the wealth at death of the inheritors? To answer this question I searched the latitude and longitude of the real assets owned by the parents of 1872 and 1882[42]. I was then able to compute the proportion of wealth made by real estate assets in the center of Paris. The center was defined in order to match the area with average decreasing price between 1878 and 1910 provided by Topalov[43]. The proportion of parents with some real estate (among real estate owners) in this area was increasing with the level of wealth as we can see in table 1.19. In the top 0.5% up to 40% of the parents had some real estate in the center, which made 30% of the wealth of the real estate owners.

I then estimated an econometric model with the same variables as the model (3) plus one variable: the share of real estate owned in the center of Paris in total wealth of the

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(41). I tried several specification: "0" versus "some" real estate, "more or less than 20% real estate", "more or less than 45% real estate"

(42). This was possible because I could observe the adress of each building in Paris estate data these years. I geolocated the buildings using macros in the Supermacro software on Google maps.

(43). See figure **??**. The center of Paris is defined as the points with longitude between 2.32218 and 2.36833 degrees and latitude between 48.856 and 48.873 degrees.

Table 1.19: The presence of real estate in the center of Paris in the parents' portfolio.

group	share of wealth	at least one asset
top 0.5%	30.2	40.1
second 0.5%	22.4	29.1
others	20	21.2

Parents with real estate deceased in 1872 and 1882.

parent (*R.E. in center*). The results of this model (5) are summed up in table 1.21. We see that the share of real estate in total wealth (*Real Estate*) remains significant and negative. On top of this, there is a significant negative effect of the variable *R.E. in center*. This means that at a given proportion of real estate/financial assets a higher proportion of real estate in the center of Paris deteriorates the level of wealth of the inheritor. An alternative estimation is proposed in model (6). The proportion of *Stock* has a significant positive effect on wealth, whereas real estate share loses significance. In this model the share of central real estate in the center is even more significant (at the level of 5%).

Another way to look at this issue is to take advantage of the detailed information on life cycle history of the 196 married inheritors. Is it possible to identify an effect of real estate ownership (of the parent) on the ex-post value of inheritance all other things being equal. To do so let us estimate the following model:

$$(7) \quad I_e = \alpha + \beta RealEstate + \gamma X$$

where I_e is the ex-post value of inheritance [44], *Real Estate* the share of real estate in the parent portfolio and X the control variables. I my model (6) I control for Parental Wealth, Gender, Age, Sibship size, Widowhood of Parent, and the time lag between the death of the parent and the death of the inheritor. Using parental wealth and sibship size allow to control for the ex-ante value of the inherited wealth received in direct line. A lack of this model is that I don't know if the inheritor died after his two parents or between his two parents which affects the amount of wealth inherited. I actually observe this variable for just 155 inheritors. I estimate a model (7) with these 155 individuals and include the dummy variable *One Parent* [45]. The results of the model are basically the same. They are presented in the two first columns of the table 1.21. There is a strong negative effect of

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(44). I_e is considered in real francs of 1882. We consider again that sold assets were sold in the year $\frac{y_p + y_c}{2}$, i.e. halfway between the year of death of the parent y_p and the year of death of the child y_c
(45). This variable is equal to one when the inheritor died before his second parent. This concerned just 9% of the inheritors of the sample.

Table 1.20: Effect of inheritance structure on the inheritor's wealth at death

Dependent variable: Wealth of inheritors at death (francs of 1882)		
	(5)	(6)
Intercept	-855,010	-988,819
	(964,475)	(981,941)
Parental Wealth	0.81***	0.81***
	(0.07)	(0.07)
Sibship Size	-326,678***	-348,741***
	(61,740)	(62,272)
Age at death	29,765***	31,271***
	(7,796)	8,296)
Woman	-118,510	-162,891
	(173,978)	(176,865)
Widow Parent	-243.993	-289,228
	191.501	195,915
Real Estate	-405,423*	-213,590
	(220,836)	(249,594)
R.E. in center	-422,975*	-553,679**
	(219,744)	(230,792)
Stock		557,111*
		(312,188)
Fixed effects by year of death (children)	Yes	Yes
Fixed effects by year of death (parents)	Yes	Yes
R^2	0.37	0.41
Observations	410	397

Observations: inheritors of individuals deceased in 1872 and 1882.
Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

the proportion of real estate of the parent on the ex-post value of inherited wealth. There is a difference of 800,000 to 900,000 francs in the In both cases the effect is statistically significant at the level of 1%.

With the information we have on the parents *and* their inheritors it is possible to estimate the difference between the initial value of inheritance (at the time of the death of the wealth transmitters) and the ex-post value of inheritance. To estimate the initial value of inheritance (I_i) of an individual of the sample I multiply the wealth of the parent by two to obtain a measure of the parents wealth which I divide by the number of children inheritors in the succession of the parent. I compute then a ratio of capital gain [46] $\frac{I_e}{I_i}$. I regress this ratio on the same variables as in model (7). This is model (8) whose results are shown in the third column of table 1.21. Real estate proportion has a significantly negative effect on the capital gains as we have already seen. The new information here is that the level of wealth of the parent has a significantly negative effect on the capital gain of the inheritor. This suggests that all other things being equal the individuals of the top 0.5% deceased in the 1860s-1880s transmitted assets that produced less capital gains that the others. We have seen for example that these individuals were more likely to possess real estate in the center of Paris which suffered more than the others from the real estate crisis. Beyond real estate the very rich maybe invested in sectors that suffered more than the others from the Great Depression. This schumpeterian hypothesis should be studied in more detail in future work by looking at the composition of financial assets by sector of activity.

Beyond the price effect inheritors from the very rich (say the top 0.5%) may have a lower pure accumulation than the others. To test this hypothesis I estimated the effect of real estate on the pure accumulation of inheritors measured by the ratio $\frac{W}{I_e}$ where W is the wealth at death of the inheritor and I_e again the ex-post value of inherited wealth. Average ratio was 1.13 in the sample. I estimate the following model with an OLS regression:

$$(9) \quad \frac{W}{I_e} = \alpha + \beta RealEstate + \gamma X$$

The control variables X are the same as in the model (7). The results of the estimation are presented in the fourth column of table 1.21. To interpret the result we have to keep in mind that the average value of the ratio $\frac{W}{I_e}$ was 1.13. We can see here that the proportion of real estate in the parents' wealth has a small and non significant effect [47]. This suggests

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(46). As we will see in the chapter three of this work the ex-post value of inherited wealth that we observe here is not determined only by capital gains on the wealth inherited by the parents. Actually the difference between initial and ex-post value of inheritance is increased by multiple inheritance (from siblings, uncles...).

(47). The only variable with a significant effect is the size of the sibship. Individuals of larger sibship seem to have a higher rate of pure accumulation. We will come back to this topic in the second chapter.

that children of real estate owners did not accumulate wealth significantly differently than the others. These different estimations tend to prove that real estate had a negative effect on wealth at death through the channel of prices.

Table 1.21: Decomposition of the life cycle effects. OLS regressions.

Explained Var.	$I_e(7)$	$I_e(8)$	$\frac{I_e}{I_i}$	$\frac{W}{I_e}$ (9)
Intercept	954,963*	1,128,867*	0.3	-0.8
	(515,901)	(703,189)	(0.65)	(1.21)
Parental Wealth	0.272***	0.254***	-1.51E-7**	-1.1E-7
	(0,049)	(0.05)	(6.3E-8)	(1.15E-7)
Real Estate	-800,714***	-898,044***	-0.82**	-0.22
	(250,021)	(306,679)	(0.32)	(0.59)
Woman	39,412	177,571	-0.05	-0.30
	(199,842)	(251,004)	(0.25)	(0.47)
Age	25,271***	27,426**	0.027**	0.03
	(8,351)	(10,567)	(0.01)	(0.02)
Sibship size	-310,641***	-362,700***	0.05	0.547***
	(70,007)	(87,039)	(0.088)	(0.164)
Widow Parent	-36,884	-178,400	-0.29	-0.245
	(209,796)	(269,709)	(0.26)	(0.494)
Time lag	-4,711	-4,685	0.015	-0.025
	(10,753)	(13,183)	(0.013)	(0.025)
One Parent		-245,901		
		(441,728)		
Obs	192	155	192	192
R^2	0.3	0.302	0.129	0.068

Standard errors in parentheses
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

1.3.6   Concluding remarks.

The very rich inheritors experienced a relative decline in the growing city of Paris at the end of the XIXth century. Almost all inheritors managed to maintain themselves in the top 5% of the deceased. At the same time the relative position of the inheritors was lower than those of their parent in average. This particularly true for the inheritors of the top 0.5%. A few rich inheritors managed to increase their wealth very sharply whereas the majority had a slow rate of accumulation.

Pure accumulation due to saving of the inheritors was very low as it is suggested by the life time information on about 200 inheritors. Ex-post inherited wealth was about 90% of the wealth at death of the inheritors. The very rich inheritors sold about 40% of their inherited assets. Even if portfolio reallocation is large the inheritors just maintained the value of their inherited assets.

The different rate of wealth increase between the top 0.5% and the lower fractions of the top 1.5% is not explained by difference in pure accumulation. On the contrary difference of capital gains of the inherited assets are probably the key variable. This is illustrated by the ownership of real estate in the center of Paris which was particularly hit by the crisis of 1882. More generally real estate ownership was associated with a lower wealth at the next generation. This is a problem because real estate was so much spread in this social class. Those who didn't have any real estate ended up significantly richer than the others.

The presence of very large and illiquid assets in the portfolio of the very rich inheritor illustrate the notion of path dependance at a microeconomic level. Inheritances with real estate were more path dependent than the others in a context where it was impossible to sell a building by part. Hence part of the relative decline of the inheritors can be explained by the crisis of real estate at that time. More precisely the subgroup of the economic elite that was real estate owner experienced a sharp relative decline during this period. The effect of the real estate assets certainly worsen after World War I, and even more after World War II. Only after 1960 the very rich began to get rid of their real estate assets according to de Moncan (2006) after a new regulation of condominiums.

Table 1.22: Number of direct successions observed by rank, and mean wealth (thousands of francs 1882)

	1862			1867			1872			1882			total
rank	mean	obs	prop	mean	obs	prop	mean	obs	prop	mean	obs	prop	obs
1 (1 to 50)	2,762	30	83%	2,626	26	100%	2,877	36	92%	3,502	33	89%	125
2 (51 to 100)	1,029	33	81%	1,159	24	89%	1,082	35	92%	1,567	33	85%	125
3 (101 to 150)	737	28	78%	814	21	96%	777	30	94%	1,173	34	95%	113
4 (151 to 200)	577	14	35%	655	18	82%	602	32	84%	931	29	91%	93
5 (201 to 250)	474	18	53%	553	3	12%	509	34	90%	778	31	84%	86
6 (251 to 300)	414	17	48%	480	0	0%	437	30	79%	665	32	84%	79
7 (301 to 350)	371	18	46%	407	0	0%	381	33	94%	575	30	83%	81
8 (351 to 400)	334	18	51%	353	0	0%	337	34	89%	501	28	78%	80
9 (401 to 450)	301	0	0%	312	0	0%	292	5	13%	454	21	56%	26
10 (451 to 500)	267	0	0%	280	0	0%	254	0	0%	407	22	55%	22
11 (501 to 550)	238	0	0%	252	0	0%	221	0	0%	368	2	6%	2
total		176			92			269			295		832

First row for year 1862: among the 50 highest successions, mean succession was 2.762 million (1882) francs. 30 direct successions were observed, so 83% of the direct successions.

Table 1.23: Top Fractiles in Paris between 1862 and 1912 in francs of 1882

	p99.9	p99.5	p99	p98.5	p98	p97	p96	p95
1862	1,948,037	760,837	456,985	347,417	265,846	159,051	108,278	76,737
1867	1,774,800	772,223	492,309	327,104	245,784	156,629	103,393	69,020
1872	2,167,140	825,474	488,456	358,665	253,028	155,029	96,893	81,928
1877	2,627,510	930,866	553,322	380,456	278,185	175,516	116,671	85,329
1882	2,299,540	973,200	586,988	404,005	298,418	181,339	120,000	80,445
1887	3,251,537	1,199,443	727,430	500,967	376,402	231,325	154,829	112,441
1892	3,018,340	1,264,923	723,435	492,888	364,016	219,510	143,578	73,917
1902	4,460,252	1,727,997	878,871	586,054	418,185	242,786	151,657	91,006
1912	3,962,021	1,466,996	812,754	519,570	358,140	200,077	124,628	85,782

Table 1.24: Mean wealth by wealth group in Paris between 1862 and 1912 in francs of 1882

	top 0.5%	second 0.5%	third 0.5%
1862	1,133,451	575,872	394,259
1867	1,159,849	605,472	397,565
1872	1,166,619	602,517	394,410
1882	1,343,510	673,824	419,401
1887	1,856,439	931,820	612,035
1892	1,903,393	1,081,092	544,686
1902	2,565,568	1,204,610	712,573
1912	2,135,885	1,075,872	624,466
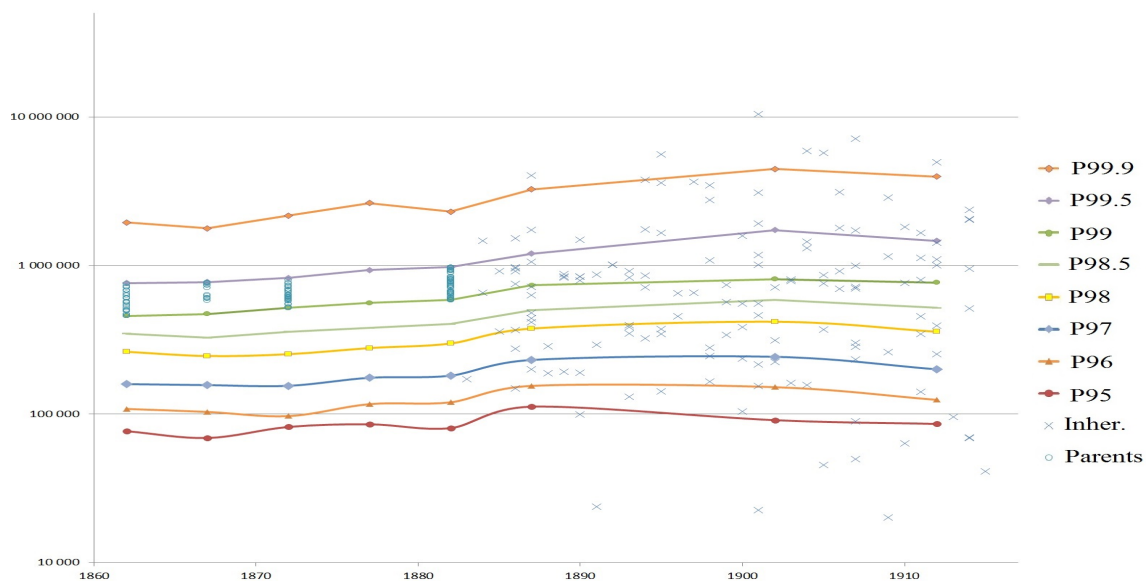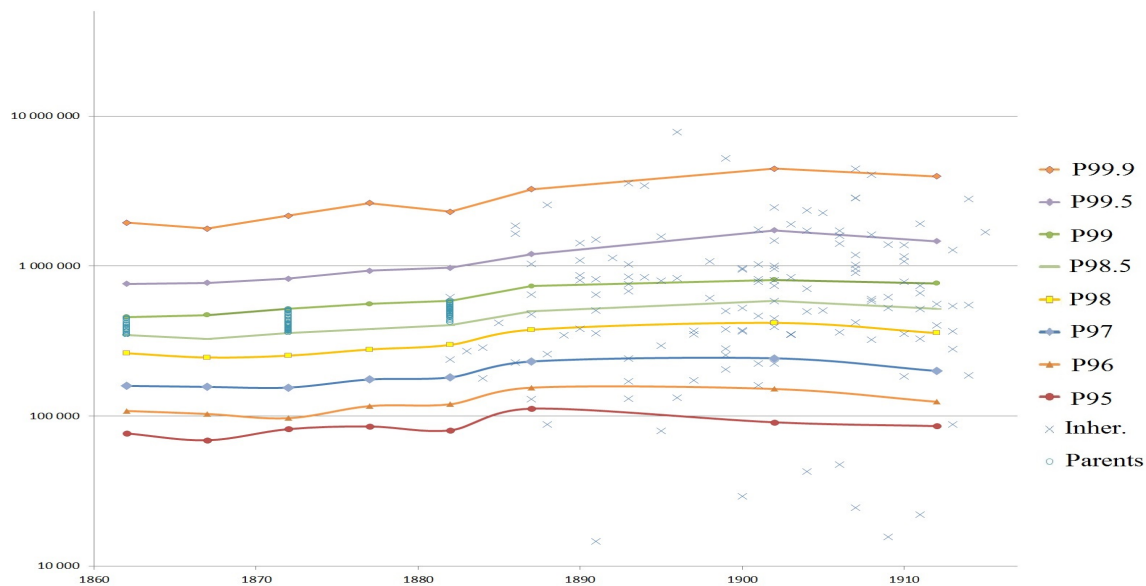
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